

Environmental Assessment

DOI-BLM-NV-W030-2010-0001-EA

Calico Mountains Complex -

Black Rock Range East (NV209), Black Rock Range West (NV227),
Calico Mountains (NV222), Granite Range (NV221), and Warm
Springs Canyon (NV226) Herd Management Areas

Wild Horse Capture Plan



Calico Mountains wild horse band, June 2009.

December 2009

Prepared by:

U.S. Bureau of Land Management
Winnemucca District Office
5100 E. Winnemucca Blvd.
Winnemucca NV 89445-2921



It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NV/WM/EA-10/04+1792

DOI-BLM-NV-W030-2010-0001-EA

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Background Information	2
1.2	Purpose and Need	6
1.3	Land Use Plan Conformance	6
1.4	Relationship to Laws, Regulations, and Other Plans	8
1.5	Conformance with Rangeland Health Standards and Guidelines	9
1.6	Decision to be Made	9
1.7	Scoping and Identification of Issues	9
2.0	PROPOSED ACTION AND ALTERNATIVES	11
2.1	Description of Alternatives Considered in Detail	11
2.1.1	Management Actions Common to Alternatives 1-2	11
2.1.2	Alternative 1. Proposed Action: Remove Excess Wild Horses, Implement Fertility Control and 60% Male Sex Ratio	13
2.1.3	Alternative 2. Removal Only -- Removal of excess wild horses	14
2.1.4	Alternative 3. No Action. Defer Gather and Removal	14
2.1.5	Alternatives Considered but Dismissed from Detailed Analysis	14
3.0	THE AFFECTED ENVIRONMENT	19
3.1	General Description of the Affected Environment	19
3.2	Supplemental Authorities (Formerly referred to as Critical Environmental Elements of the Human Environment)	21
3.2.1	Cultural Resources	22
3.2.2	Migratory Birds	22
3.2.3	Native American Religious Concerns	23
3.2.4	Threatened & Endangered Species	23
3.2.5	Water Quality (Surface and Ground)	24
3.2.6	Wetlands and Riparian Zones	26
3.2.7	Wilderness	27
3.3	Additional Affected Resources	28
3.3.1	Fisheries	28
3.3.2	Rangeland Management	28
3.3.3	Soils	33
3.3.4	Special Status Species	33
3.3.5	Vegetation	35
3.3.6	Wild Horses	36
3.3.7	Wilderness Study Areas	45
3.3.8	Wildlife	45
4.0	ENVIRONMENTAL CONSEQUENCES	46
4.1	Cultural Resources	46
4.2	Migratory Birds	47
4.3	Native American Religious Concerns	47
4.4	Threatened & Endangered Species	48
4.5	Water Quality (Surface and Ground)	48

4.6	Wetlands and Riparian Zones	49
4.7	Wilderness	49
4.8	Fisheries	49
4.9	Range Management	50
4.10	Soils.....	50
4.11	Special Status Species	51
4.12	Vegetation	52
4.13	Wild Horses	53
4.14	Wilderness Study Areas	61
4.15	Wildlife.....	61
5.0	CUMULATIVE IMPACTS	62
5.1	Past and Present Actions.....	62
5.2	Reasonable Foreseeable Future Actions	64
5.3	Cumulative Impacts (For all affected resources analyzed in Chapter 4)	65
6.0	MONITORING AND MITIGATION MEASURES	67
7.0	LIST OF PREPARERS.....	67
8.0	CONSULTATION AND COORDINATION.....	68
9.0	PUBLIC INVOLVEMENT	69
10.0	REFERENCES.....	70
	MAP 1. CALICO COMPLEX WILD HORSE CAPTURE AREA	74
	MAP 2. CALICO COMPLEX HERD MANAGEMENT AREAS AND ALLOTMENTS.....	75
	MAP 3. CUMULATIVE ASSESSMENT AREA	76
	APPENDIX A. STANDARD GATHER OPERATION OPERATING PROCEDURES (SOPS).....	77
	APPENDIX B. FERTILITY CONTROL TREATMENT OPERATING PROCEDURES (SOPS).....	83
	APPENDIX C. CALICO MOUNTAINS COMPLEX POPULATION MODELING	84
	APPENDIX D. CALICO COMPLEX INTERESTED PUBLIC MAILING LIST	94
	APPENDIX E. MINIMUM REQUIREMENT/TOOL WORKSHEETS	2
	Table 1: Calico Mountains Complex - AML Decision Documents	3
	Table 2: Comparison of Livestock and Wild Horse AUMs	16
	Table 3: Precipitation in Inches	20
	Table 4: Supplemental Authorities (Critical Elements of the Human Environment).....	21
	Table 5: Summary of Spring Assessment Inventories.....	25
	Table 6: Other Resources Checklist.....	28
	Table 7: Land Status in Acres.....	28
	Table 8: Permitted Livestock use in Allotments that include the Calico Mountains Complex	29
	Table 9: HMA Acres within Allotments.....	30

Table 10: Horse Population by Allotment (in AUMs).....	30
Table 11: Livestock AUMs.....	31
Table 12: Grazing Use (AUMs) by Year.....	31
Table 13: Current Horse and Burro Populations.....	37
Table 14: Wild horse AML, 2008 Current Use Levels and Livestock and Wildlife Comparison	38
Table 15: Surprise Field Office Inventory, March 2008.....	40
Table 16: Calico Complex/Surprise Field Office Population and AML	40
Table 17: Gather History, Calico Complex	43

1.0 INTRODUCTION

The Bureau of Land Management (BLM) is proposing to remove 2,432-2,468 excess wild horses from the Calico Mountains Complex (Complex) by capturing 2,432-2,736 wild horses, and releasing up to 268 of the captured horses after applying fertility control and/or sex ratio adjustments, in order to return wild horse population size to within the appropriate management level (i.e. 572-952 wild horses), restore a thriving natural ecological balance, and prevent further degradation of rangeland resources resulting from an overpopulation of wild horses. The gather is expected to take 50-60 days to complete due to potential winter weather delays and the logistics involved in moving trap corrals and holding sites numerous times due to the size of the Complex. Winter gathers in this area are preferred as foals are older and wild horses are down off of the highest elevations, reducing the travel distance to trap site locations.

The Complex consists of approximately 550,000 acres (public and private) and is located north and east of Gerlach, Nevada within Humboldt and Washoe counties. The entire gather area spans approximately 50 miles long and 35 miles wide. A portion of the area is located within the Black Rock Desert High Rock Canyon Emigrant Trails National Conservation Area (NCA). The Complex includes the following Herd Management Areas (HMAs) (also refer to Map 1):

- ❑ Black Rock Range East
- ❑ Black Rock Range West
- ❑ Calico Mountains
- ❑ Granite Range
- ❑ Warm Springs Canyon

Wild horses from these HMAs would be gathered as a Complex or unit as herds move and interact throughout. The Complex gather involves areas beyond the HMA boundaries as displayed in Maps 1 and 2 as wild horses have moved outside of HMAs in search of forage, water and space, due to the current over-population of wild horses in this area. Burros are only found in the Warm Springs Canyon HMA and would not be gathered or removed as the current population estimate is within the established Appropriate Management Level (AML) for burros in that HMA.



Photo 1. Winter time on the Black Rock Range West HMA, 2/09.



Photo 2. New spring foal, Calico Mountains HMA, 6/09

1.1 Background Information

The HMAs in the planning area were designated as suitable for the long-term maintenance of wild horses and burros in the approved Paradise-Denio and Sonoma-Gerlach Management Framework Plans (MFPs) (1982). (HMA terminology did not exist at the time the MFPs were developed. The MFPs referred to HMAs as Herd Use Areas.)

The Sonoma Gerlach MFP and Paradise-Denio MFP Records of Decision (1982) established the multiple use balance between livestock, wild horses, and wildlife based on the analysis of alternative allocations between these uses, and set initial forage allocations for wild horses.

In the early 1990s, the appropriate horse numbers for all HMAs in the Complex were further evaluated relative to these initial allocations to ensure a thriving natural ecological balance. AMLs for the five HMAs in the Complex were established in Final Multiple Use Decisions completed in 1993 and 1994, based on Allotment Evaluations that analyzed resource monitoring data and allowed for public involvement and input into the decision-making process. The AMLs for the Warm Springs Canyon HMA, Black Rock Range East HMA, Black Rock West HMA, and a portion of Calico Mountain HMA were re-affirmed through FMUDs issued following completion of Environmental Analyses for the Soldier Meadows and Paiute Meadows Allotments in 2004 and 2003 respectively. A 1993 FMUD and associated allotment evaluation established AML for the Granite Range HMA. An FMUD completed in 2005 for the Pine Forest Allotment established an AML of zero for a small portion of the Black Rock East HMA that fell within that allotment.

NEPA analyses which supported the initial AMLs or re-affirmed AMLs are found in the Sonoma-Gerlach Draft Grazing Environmental Impact Statement (EIS) (1981); Sonoma-Gerlach Final Grazing EIS (1981); Sonoma Gerlach MFP and associated Grazing EIS Record of Decision (ROD) (1982); Paradise-Denio Draft Grazing EIS (1981); Paradise-Denio Final Grazing EIS (1981); Paradise-Denio MFP and associated Grazing EIS ROD (1982); Environmental Assessment for Soldier Meadows Allotment (2003); Environmental Assessment for Paiute Meadows Allotment (2003); and Pine Forest Allotment Environmental Assessment (2004). Gather Plan Decisions for the Complex and associated Environmental Assessments also adjusted and re-affirmed AML in the years 2000 and 2004 for all HMAs in the Complex (Table 1)

The AML for the Complex was established as a population range of 586-976 wild horses and burros (Table 1). Establishing AML as a population range allows for the periodic removal of excess animals (to the low range) and subsequent population growth (to the high range) between removals (gathers).

AMLs were established in order to ensure a thriving natural ecological balance and multiple-use relationship within the Complex. BLM manages wild horses and burros at the established AMLs and removes animals in excess of the established AML range. Refer to section 3.3.7 for additional information.

Table 1: Calico Mountains Complex - AML Decision Documents

HMA	Grazing Allotment	Decision Type/Date	AML
Black Rock Range East	Paiute Meadows	FMUD – 04/12/93 FMUD – 10/15/03 DR 09/14/00 DR 02/04/04	56-93 H
	Pine Forest	FMUD – 09/30/05	0
Black Rock Range West	Soldier Meadows	FMUD – 01/24/94 DR 09/14/00 DR 02/04/04	56-93 H
Calico Mountains	Buffalo Hills	FMUD – 02/09/93 DR 09/14/00 DR 02/04/04	200-333 H
	Leadville	FMUD – 01/19/94 DR 09/14/00 DR 02/04/04	
	Soldier Meadows	FMUD – 01/24/94 FMUD – 05/05/04 DR 09/14/00 DR 02/04/04	
Granite Range	Buffalo Hills	FMUD – 02/09/93 DR 11/22/00 DR 12/10/04	155-285 H
Warm Springs Canyon	Soldier Meadows	FMUD – 01/24/94 FMUD – 05/05/04 DR 09/14/00 DR 02/04/04	105-175 H; 14-24 B
TOTAL			586-976 (with burro AML) 572-952 (without burro AML)

The combined AML for the five HMAs within the Complex is a range of 586-976 wild horses/burros. The current population of wild horses within the Complex is 3,040¹ wild horses based on a direct count aerial population inventory conducted September 2009. The current population exceeds the low AML by 2,468 wild horses and is about 5.3 times the low range of the AML (572 animals) or about 3 times the high range AML of 952 animals. In fact, the current population of wild horses alone exceeds the identified carrying capacity for both livestock and

¹ While BLM counted a total of 3,040 wild horses in September 2009, it is possible that some horses were hidden from view and were not spotted. As a result, there may be more than 3,040 wild horses within the Complex. However, the September 2009 inventory data is consistent with the earlier March 2008 inventory and estimated increase from two foaling seasons in 2008 and 2009, thereby indicating that the inventory number is reliable for purposes of determining excess wild horse numbers.

wild horses combined as established in the FMUDs completed for all four allotments dated 1993, 1994, 2003 and 2004.

The last gather within the Complex occurred in the winter of 2004-2005 when 2,033 wild horses were gathered, 1,623 removed, and 410 released back to the range. Two hundred and thirty-nine mares were treated with a Porcine Zona Pellucida (PZP-22) vaccine (i.e., fertility control agent) and freeze marked for future identification. Following the gather, the BLM believed that 575 wild horses remained in the Complex, but the existing population of 3040 horses indicates that either there were many more present after the 2005 gather than estimated and/or that horses have moved into the Complex from outlying areas.

Extreme drought conditions have occurred within the Complex since the most recent gather in 2005. Refer to Section 3.1 for additional information about precipitation since the last gather. Drought conditions combined with the overpopulation of wild horses above AML has caused some water sources within the Complex to dry up and become unavailable for use by wild horses, livestock or wildlife. This has further compounded the issue of already limited waters within the Complex. Drought conditions are evident throughout the Complex, as indicated by low forage production in some areas and decreased water flows throughout riparian systems including spring brooks, perennial and intermittent streams and developed water sources used by wildlife, livestock and wild horses.

The AMLs represent the wild horse population range at which a thriving natural ecological balance can be maintained, and reflect the balance between wild horse and other multiple uses of the public rangelands established through prior planning decisions. Because of the valuable rangeland, riparian, wildlife, recreation and wilderness values within the Complex it is very important to maintain the populations within the established AML ranges in order to prevent the overuse and degradation of rangeland resources, and to promote improved wild horse habitat condition and population health. After removal of the excess wild horses, periodic monitoring of wild horse use throughout these HMAs will continue to include wild horse distribution, animal inventory and condition, vegetative trend, vegetation utilization and water availability and riparian condition.

When the AMLs are reached and maintained, upward habitat trend should be observed throughout the HMAs. Genetics data, as well as data collected during the proposed gather and future monitoring data would be assessed to outline long term management strategies for these HMAs. As the range improves in future years and wild horse populations are maintained at AMLs, the BLM may consider adjusting the AML. AML would be adjusted only if monitoring data exists to show that the adjusted population would still maintain a thriving natural ecological balance and not impact vegetation or riparian resources or important habitat used by wildlife or threatened and other special status species.

BLM has determined that 2,468 excess wild horses are present within the Complex and need to be removed in order to be in compliance with the Wild Free-Roaming Horses and Burros Act by achieving the established AMLs, restoring a thriving natural ecological balance and preventing further degradation of rangeland resources resulting from an overpopulation of wild horses. This assessment is based on factors including, but not limited to the following rationale:

- Based on the most recent aerial inventory flight completed September 2009, the current

population of wild horses is 3,040 animals, which equates to 2,468 wild horses in excess of the low AML; and 2,088 wild horses in excess of the high range of AML;

- The current population of wild horses exceeds the identified carrying capacity for both livestock and wild horses combined as established or re-affirmed in the 1993, 1994, 2000, 2003, 2004 and 2005 FMUDs or Capture EA Decisions;
- Wild horses in excess of AML were identified as causal factors contributing to the non-attainment of RAC Standards for Rangeland Health in the Soldier Meadows and Paiute Meadows Allotments assessed within the 2003 Rangeland Health Assessments, with management of wild horses at AML identified as a necessary component to achieve or make significant progress in meeting rangeland health standards. Current excess numbers of wild horses are creating the same types of impact that led to non-attainment of standards in the 2003 Rangeland Health Assessments;
- Monitoring data indicates excess wild horses are causing degradation of riparian and wetland habitats, some of which are designated habitats for Lahontan cutthroat trout (LCT) a federally listed threatened species.
- Monitoring data indicates upland vegetation resources are receiving moderate to heavy utilization by wild horses, particularly within the Warm Springs Canyon HMA;
- Monitoring data indicates wild horses have caused damage to water sources and rangeland improvements;
- In addition to degradation within the HMAs, wild horses have moved outside of the Warm Springs Canyon HMA onto Tribal lands, have caused property damage to newly built fences, and are causing impacts to LCT habitat on Reservation lands. Summit Lake Paiute Tribe has contacted the BLM with concerns regarding wild horse impacts on the sensitive shores of Summit Lake through utilization and trampling, and have requested the removal of these horses. According to 43 CFR § 4720.2-1, BLM is required to remove wild horses that stray onto private lands as soon as practicable after a request for removal is received.
- Wild horses have also moved onto public lands that fall outside of established HMAs as the overpopulation of horses within the Complex results in horse movement beyond the Complex boundaries in search of forage, water and space. According to 43 CFR § 4710.4, BLM is required to manage wild horses within their HMAs and to remove wild horses that take residence outside of HMA boundaries.
- Water sources and winter range are limited within the Complex. With a normal or heavier than normal winter causing snow pack cover; adequate forage may not be available to support the existing population through this winter, even if the grazing permittee's were to take voluntary non-use. Sporadic winter conditions such as this do not alleviate current drought status in the area.



Photo 3: Burnt Spring – heavily utilized source of water



Photo 4: Limited inflow to tire trough due to drought

1.2 Purpose and Need

The purpose of the Proposed Action is to remove excess wild horses within the Complex and limit wild horses to within the HMAs and to remove wild horses from non-HMA areas to which wild horses have moved. This would be achieved by removing excess horses within the HMAs and adjacent land within the Complex gather area which will allow for a thriving natural ecological balance.

This action is needed in order to achieve a population size within the established AML, protect rangeland resources from further deterioration associated with the current wild horse overpopulation, and restore a thriving natural ecological balance and multiple use relationship in the area consistent with the provisions of Section 3(b) (2) of the *Wild Free-Roaming Horses and Burros Act of 1971* (1971 WFRHBA)².

1.3 Land Use Plan Conformance

The Proposed Action and action alternatives are in conformance with the Sonoma-Gerlach (SG) and Paradise –Denio (PD) Environmental Impact Statements and the associated Record of Decisions (RODs) for the *Paradise-Denio and Sonoma-Gerlach Resource Area Management Framework Plans (MFPs)* approved July 9, 1982.

The wild horse and burro section of the SG and PD RODs, July 1982, *Plan and Implementation* consists of the integration of the Proposed Actions and the Livestock Reduction/Maximizing Wild Horses and Burros Alternative with the following modifications:

² The Interior Board of Land Appeals (IBLA) defined the goal for managing wild horse (or burro) populations in a thriving natural ecological balance as follows: “As the court stated in Dahl v. Clark, *supra* at 594, the ‘benchmark test’ for determining the suitable number of wild horses on the public range is ‘thriving ecological balance.’ In the words of the conference committee which adopted this standard: ‘The goal of WH&B management ***should be to maintain a thriving ecological balance between WH&B populations, wildlife, livestock and vegetation, and to protect the range from the deterioration associated with overpopulation of wild horses and burros.’ ” (Animal Protection Institute of America v. Nevada BLM, 109 IBLA 112, 115, (1989).

4. Wild horse and burro herds will be maintained in the areas described in the Livestock Reduction/Maximizing Wild Horse and Burro Alternative. However, numbers will be determined by the following criteria: Existing/current WH&B numbers (as of July 1, 1982) will be used as a starting point for monitoring purposes except where one of the following exist:

- a. Numbers are established by adequate and supportable resource data.
- b. Numbers are established through the CRMP process as documented in CRMP recommendations and agreed to by the District Manager.
- c. Numbers are established by formal signed agreement between affected interests.
- d. Numbers are established through previously developed interim capture/management plans. Plans are still supportable by parties consulted in the original plan. EA's (EAR's) were prepared and are still valid.
- e. Numbers are established by court order.

The following is Wild Horse and Burro Objective 1 from the Sonoma-Gerlach MFP, 1982:

- **WHB-1:** Maintain a viable population of wild horses and burros on public lands where there was wild horse and burro use as of December 15, 1971, and achieve and maintain a thriving natural ecological balance on the forage resource.

The following is Wild Horse and Burro Objective 1 from the Paradise-Denio MFP, 1982:

- **WHB-1:** Maintain wild horses and burros on public lands, where there was wild horse or burro use as of December 15, 1971, and maintain a natural ecological balance on the public lands.

The Proposed Action is also in conformance with the July 2004 ROD for the *Black Rock Desert High Rock Canyon Emigrant Trails NCA Resource Management Plan (RMP)*.

Objectives:

- To manage sustainable populations of wild horses in nine HMAs and wild burros in two HMAs consistent with the intent of the NCA Act within established AMLs to maintain a thriving ecological balance among wild horse and burro populations, wildlife, livestock, vegetation resources, and other values and uses.
- To maintain free roaming behavior of wild horses and burros.

Applicable Decisions are:

- ☐ **WHB-1:** Retain referenced HMAs (Black Rock Range East, Black Rock Range West, Calico Mountains and Warm Springs Canyon,) and manage wild horse or burro populations consistent with plan objectives.

- ☐ **WHB-3:** Contiguous HMAs with documented reproductive interaction will be managed as complexes to enable better management of genetic traits for the population and to improve coordination of monitoring and gathering.
- ☐ **WHB-5:** Horses and burros will be gathered from the HMAs to maintain horses and burros within the AML as funding permits. Aircraft will continue to be used for the management and, when necessary, removal of wild horses and burros. Gather activities will be scheduled to avoid high visitor use periods whenever possible.
- ☐ **WHB-6:** Gathers in Wilderness will continue to be conducted by herding the animals by helicopter or on horseback to temporary corrals, generally located outside of Wilderness. No landing of aircraft will occur in Wilderness Areas except for emergency purposes, and no motorized vehicles will be used in Wilderness in association with the gather operations unless such use was consistent with the minimum tool requirement for management of Wilderness.

1.4 Relationship to Laws, Regulations, and Other Plans

Statutes and Regulations

The Proposed Action and action alternatives are in conformance with the *Wild Free-Roaming Horses and Burros Act of 1971* (as amended), applicable regulations at 43 CFR § 4700 and BLM policies. Included are:

- ☐ **43 CFR § 4710.4 Constraints on Management**
Management of wild horses and burros shall be undertaken with limiting the animals' distribution to herd areas. Management shall be at the minimum feasible level necessary to attain the objectives identified in approved land use plans and herd management area plans.
- ☐ **43 CFR § 4720.1 Removal of excess animals from public lands**
Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately.
- ☐ **43 CFR § 4740.1 Use of motor vehicles or aircraft**
 - (a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner.
 - (b) Before using helicopters or motor vehicles in the management of wild horses or burros, the authorized officer shall conduct a public hearing in the area where such use is to be made.

Other Plans

The Proposed Action and action alternatives are in conformance with Biological Opinions and Recovery Plans for Threatened and Endangered (T&E) species, including:

- ☐ *Biological Opinion for the 2003 through 2013 Livestock grazing System for the Soldier Meadows Allotment, Humboldt County, Nevada, August 14, 2003.*
- ☐ *Biological Opinion for the 2003 through 2013 Livestock Grazing System for the Paiute Meadows Allotment, Humboldt County, Nevada, June 13, 2003.*

- ❑ *Recovery Plan for the Rare Species of Soldier Meadows*, 1997.
- ❑ *Lahontan Cutthroat Trout Recovery Plan*, 1995.

1.5 Conformance with Rangeland Health Standards and Guidelines

The Sierra Front-Northwestern Great Basin Area (SFNGBA) Standards and Guidelines for Rangeland Health were approved by the Secretary of the Interior in 1997. RAC Standards and Guidelines for the Management of Wild Horses and Burros were later approved by the BLM's Nevada State Director in 2007. Alternatives 1 and 2 are in conformance with the Standards and Guidelines for Rangeland Health and for Management of Wild Horses and Burros.

Rangeland Health Assessments completed for the Soldier Meadows and Paiute Meadows Allotments in 2003 resulted in a determination that excess wild horse and burro numbers were contributing factors for not achieving and/or for not allowing for the progress towards the Standards for Rangeland Health for Standards 1 (soil processes), 2 (riparian) and 4 (habitat). The SFNGBA Standards and Guidelines for Rangeland Health and Management of Wild Horses and Burros can be accessed at http://www.blm.gov/nv/st/en/res/resource_advisory/sierra_front-northwestern.print.html.

1.6 Decision to be Made

The authorized officer would determine whether or not to implement the proposed population control measures in order to achieve and maintain the established AMLs for the Complex and to prevent the further deterioration of the range resulting from overpopulation of wild horses.

The decision would not set or adjust AMLs, which were set by previous planning-level decisions. Monitoring data confirms that the current horse population within the Complex is in excess of a thriving natural ecological balance. Removal of excess wild horses and achievement of established AML should allow BLM to manage the Complex for a thriving natural ecological balance. Future decisions regarding long-term management within the HMAs will continue to be accomplished through a Herd Management Area Plan (HMAP) or other activity level management plans specific to the Complex. Additionally, the decision would not adjust livestock use, which also has been established through prior planning-level processes and decisions.

The No Action Alternative would not achieve the identified Purpose and Need. However, it is analyzed in this EA to provide a basis for comparison with the other action alternatives, and to assess the effects of not conducting a gather at this time. The No Action Alternative is in violation of the requirement under the Wild Free-Roaming Horses and Burros Act that the Secretary remove excess wild horses, and is also not in conformance with regulatory provisions for management of wild horses and burros as set forth at 43 CFR § 4700.

1.7 Scoping and Identification of Issues

Consultation and coordination with BLM, the Sierra Front-Northwestern Great Basin Resource Advisory Council (RAC), Nevada Department of Wildlife, US Fish & Wildlife Service, and routine business contacts with livestock operators and others, has underscored the need for BLM to maintain wild horse and burro populations within the AML.

A Notice of Proposed Action (NOPA) was sent to the Wilderness and Wilderness Study Area Interested Publics mailing list on September 17, 2009. The Friends of the Wilderness wrote in support of the proposed action as described in the NOPA.

BLM staff accompanied the RAC on a tour of the Warm Springs Use Area of the Soldier Meadows Allotment, within the Warm Springs HMA, on July 16, 2008. Evidence of adverse range conditions resulting from the excess numbers of wild horses within the HMA was directly observed during that tour, particularly at water sources.

Consultation between the BLM, State of Nevada Commission for the Preservation of Wild Horses and the Sierra Club occurred in November 2008. These groups toured the area proposed for the gather with BLM and jointly concurred that excess horses were present and that a gather was needed to remove excess horses, to protect the natural resources, and to ensure the health of the wild horses.

The following issues were identified as a result of consultation/coordination and scoping relative to BLM's management of wild horses and burros in the planning area:

1. A need to implement different or additional population control methods in order to maintain population size within AML over the long-term. Measurement indicators for this issue include:
 - ☐ Projected average annual growth rate/expected effectiveness of proposed population control methods (WinEquus population modeling);
 - ☐ Projected gather frequency;
 - ☐ Projected number of excess animals to be removed and placed in the adoption, sale, and short or long term holding pipelines over the next 10 years.
2. Impacts to vegetation/soils, riparian/wetland, and cultural resources. Measurement indicators for this issue include:
 - ☐ Expected forage utilization;
 - ☐ Potential impacts to vegetation/soils and riparian/wetland resources.
3. Impacts to wildlife, migratory birds, and threatened, endangered and special status species and their habitat. Measurement indicators for this issue include:
 - ☐ Potential for short-term displacement, trampling or disturbance;
 - ☐ Potential competition for forage and water over time.
4. Impacts to individual wild horses and the herd. Measurement indicators for this issue include:
 - ☐ Potential impacts to animal health and condition;
 - ☐ Expected impacts to individual wild horses and herd social structure from future gather operations (handling stress);

- ☐ Potential effects to genetic diversity.

2.0 PROPOSED ACTION AND ALTERNATIVES

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Alternatives analyzed in detail include the following:

Alternative 1	Proposed Action -- Removal of excess wild horses, application of Fertility Control, and 60% Male Sex Ratio
Alternative 2	Removal Only – Removal of excess wild horses
Alternative 3	No Action – Defer gather and removal

The Proposed Action and Alternative 2 were developed to achieve the established AML so as to ensure a thriving natural ecological balance, remove excess wild horses from the range, prevent further deterioration to the range, and ensure the long-term health of wild horses within the Complex. Fertility control treatments and modification of sex ratios of released animals would slow population growth and increase the time period before another gather was required. The No Action Alternative would not achieve the identified Purpose and Need; however, it is analyzed in this EA to provide a basis for comparison with the other action alternatives, and to assess the effects of not conducting a gather at this time.

2.1 Description of Alternatives Considered in Detail

2.1.1 Management Actions Common to Alternatives 1-2

- ☐ Wild horses from these HMAs would be gathered as a Complex or unit as herds move and interact throughout. The Complex gather involves areas beyond the HMA boundaries as displayed in Map 1 and 2.
- ☐ The wild horse gather would be scheduled to begin in December 2009 and would be expected to take approximately 50-60 days to complete. Several factors such as animal condition, herd health, weather conditions, or other considerations could result in adjustments to the schedule.
- ☐ Gather operations would be conducted in accordance with the Standard Operating Procedures (SOPs) described in the National Wild Horse Gather Contract. Appendix A outlines the SOPs currently in effect. The primary gather (capture) methods would be the helicopter drive method with occasional helicopter assisted roping (from horseback).
- ☐ Gather operations in Wilderness Areas would be conducted by herding the animals by helicopter or on horseback to temporary corrals, generally located outside Wilderness boundaries. No landing of aircraft would occur in Wilderness Areas except for emergency purposes and no motorized vehicles would be used in Wilderness Areas in association with the gather operation unless such use is consistent with the minimum requirements for management of Wilderness Areas and is preapproved by the authorized officer.
- ☐ Trap sites and holding facilities would be located in previously used trap sites and other disturbed areas (Map 1) whenever possible. Undisturbed areas identified as potential trap sites or holding facilities would be inventoried for cultural resources. If cultural resources are encountered, these locations would not be utilized unless they could be modified to avoid

impacts to cultural resources. Trap sites and holding facilities would not be placed in known areas of Native American concern.

- ☐ Gather activities would be scheduled to avoid high visitor use periods whenever possible in accordance with WHB-5, *Black Rock Desert High Rock Canyon Emigrant Trails NCA Resource Management Plan (RMP)*, ROD July 2004 (refer to Section 1.3).
- ☐ Data including sex and age distribution, reproduction, body condition class information (using the Henneke rating system), color, size and other information may also be recorded, along with the disposition of that animal (removed or released).
- ☐ Hair samples would be collected on about 25-50 animals from each HMA to ensure that acceptable genetic diversity is being maintained (avoid inbreeding depression).
- ☐ A BLM contract Veterinarian, Animal and Plant Health Inspection Service (APHIS) Veterinarian or other licensed Veterinarian would be on site as the gather is started and then as needed for the duration of the gather to examine animals and make recommendations to BLM for care and treatment of wild horses, and ensure humane treatment. BLM staff would be present on the gather at all times to observe animal condition and ensure humane treatment. Additionally, animals transported to BLM holding facilities are inspected by facility staff and on-site contract Veterinarians to observe health and ensure the animals have been cared for humanely.
- ☐ Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041). Conditions requiring humane euthanasia occur infrequently and are described in more detail in Section 4.13. Current policy reference:
http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html.
- ☐ Excess animals would be transported to BLM facilities for adoption, sale, or long-term holding.
- ☐ Noxious weed monitoring at trap sites and temporary holding facilities would be conducted in the spring and summer of 2010 by BLM. Treatment would be provided, if necessary, following guidance from the Noxious Weed Control EA# NV-020-02-19, Decision August 27, 2002.
- ☐ Nevada Department of Wildlife (NDOW) plans to conduct a capture operation of bighorn sheep from within the Complex, independent of this proposal, in order to relocate sheep to areas outside of the Complex during the winter months. BLM would coordinate closely with NDOW to ensure there would be no conflict between the two separate gather operations.
- ☐ Monitoring of forage condition and utilization, water availability, aerial population surveys and animal health would continue.

- ❑ A comprehensive post-gather aerial population survey would occur within 12 months following completion of the gather operation. The inventory would be planned to include both Calico Complex and adjacent HMAs in California.

2.1.2 Alternative 1. Proposed Action: Remove Excess Wild Horses, Implement Fertility Control and 60% Male Sex Ratio

This Proposed Action would remove 2,468 excess wild horses and manage for a thriving natural ecological balance by treating some of the horses that would remain following the gather so as to slow the annual growth rate so that BLM can better manage wild horses in the Complex at AML and reduce the number of excess animals that would need to be removed in future gathers.

The objective of the Proposed Action is to gather up to 2,736 wild horses, of which 2,432-2,468 would be removed in order to return wild horse population size to within the AML (i.e. 572-952 wild horses). Up to 268 (77 treated mares and 191 studs) would be released back into the Complex. Eighty-one percent of the existing population must be gathered in order to remove the 2,468 excess wild horses necessary to achieve the low AML.

The proposal also includes fertility control treatment and/or adjustment of the sex ratio to favor males through the selection of release horses, so as to decrease the future annual population growth. In order to apply fertility control to mares, and to treat a large enough portion of the horses captured and subsequently released, the gather operation would need to result in the capture of at least 81-90% of the entire current wild horse population in the Complex.

If the gather efficiency exceeds 80% (2,432 head), then all mares selected for release, including those previously treated with fertility control, would be treated/re-treated with a two-year Porcine Zona Pellucida (PZP-22) or similar vaccine and released back to the range. Immuno-contraceptive treatments would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix B). Mares would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

Studs selected for release would be released to increase the post-gather sex ratio to approximately 60% studs in the remaining herds. Studs would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).

Animals would be removed using a selective removal strategy to the extent possible. Selective removal criteria include:

- (1) First Priority: Age Class - Five Years and Younger
- (2) Second Priority: Age Class - Six to Fifteen Years Old
- (3) Third Priority: Age Class Sixteen Years and Older

Post-gather, every effort would be made to return released horses to the same general area from which they were gathered.

Due to the mountainous terrain, vegetative cover, and potential winter storm conditions, gathers efficiency may be less than optimal. Population gather projections show that at 80% gather efficiency (i.e., 80% of the current population of 3,040 or 2,432 horses gathered) an insufficient number of wild horses would be gathered to implement fertility control or allow release of horses back onto the range or to achieve the low range AML.

Should an adequate portion of the population not be captured, fertility control treatments would not be implemented, and the Proposed Action would consist of either removal only to achieve the low AML or the release of only studs to achieve the low range of AML.

The highest success obtained for fertility control has been achieved when applied during the timeframe of November through March. Refer to Appendix B for more information about fertility control procedures. The efficacy for the application of the two-year PZP-22 vaccine based on winter application is as follows:

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Normal	94%	82%	68%

2.1.3 Alternative 2. Removal Only -- Removal of excess wild horses

In addition to the actions described in Section 2.1.1, the Complex would be managed as a range of 572-952 wild horses and 14-24 wild burros as follows:

- 2,432 (80%) to 2,468 (81%) wild horses of the total current wild horse population (3,040 wild horses) would be captured and 2,432 to 2,468 excess wild horses would be removed. To achieve the low range AML, a minimum of 2,468 horses would need to be removed.
- No changes to the sex ratio would be made, and the post-gather sex ratio would be expected to remain at 45-50% studs/50-55% mares.

2.1.4 Alternative 3. No Action. Defer Gather and Removal

Under the No Action Alternative, no gather would occur and there would be no additional management actions undertaken to control the size of the wild horse populations at this time.

2.1.5 Alternatives Considered but Dismissed from Detailed Analysis

Use of Bait and/or Water Trapping

An alternative considered but dismissed from detailed analysis was use of bait and/or water trapping as the primary gather method. This alternative was dismissed from detailed study for the following reasons: (1) the size of the area is too large to use this method; and (2) the presence of water sources on both private and public lands inside and outside the Complex's boundary would make it almost impossible to restrict wild horse access to only selected water trap sites, which would extend the time required to remove the excess horses. The large geographic area involved and the extended time necessary for this alternative would result in a significant increase in gather cost and would make it difficult to limit the gather to the preferred winter months. This could extend the gather into the 6 weeks prior to the peak of foaling and

result in potential impacts to mares and their newborn foals. Given the impracticalities of implementing this alternative for such a large geographic area, this alternative was eliminated from detailed study.

Gather Every Two Years, Remove Excess Wild Horses to Low AML and Apply Two-Year PZP

An alternative to gather the Complex's wild horses every two years, remove excess wild horses to AML, and apply two-year fertility control treatment (PZP-22) to breeding age mares was considered. This alternative would gather 2,468 excess animals initially and there would be no sex ratio adjustment. During the initial gather it may be difficult to gather a large enough portion of the population to administer fertility control to enough mares to make an impact on the population growth rate. With each subsequent gather, the percentage of mares treated would increase due to the lower population size within the HMAs, which in turn should lower the population growth rate. Though repeated treatments would be occurring, excess horses would still have to be removed during some of the gathers in order to maintain AML; however these removal numbers would be low. This alternative would decrease the existing overpopulation of wild horses and their impacts to rangeland resources would be reduced; however, implementation of this alternative would result in significantly increased gather and fertility control costs. The time needed to complete a gather would increase over time because when an area is frequently gathered, the more difficult wild horses are to capture. They become very evasive, and learn to evade the helicopter by taking cover in treed areas and canyons. Wild horses would also move out of the area when they hear a helicopter, thereby further reducing the overall gather efficiency. Frequent gathers would increase the stress to wild horses, as individuals and as entire herds. It would become increasingly more difficult over time to repeat gathers every two years to successfully treat a large portion of the population. Therefore, due to the size of the area and the complexity involved in gathering the entire Complex, significantly increased gather and fertility control costs, and given that other reasonable management options exist, this alternative was eliminated from detailed study.

Remove or Reduce Livestock within the HMAs

This alternative would involve no removal of wild horses and instead address the excess wild horse numbers through the removal or reduction of livestock within the HMAs. This alternative was not brought forward for analysis because it is inconsistent with the Land Use Plan objectives and FMUDs and is inconsistent with multiple use management.

The proposal to reduce livestock would not meet the purpose and need for action identified in Section 1.2 *"to remove excess wild horses in the Complex. This action is needed in order to achieve a population size within the established AML, protect rangeland resources from further deterioration associated with the current wild horse overpopulation, and restore a thriving natural ecological balance and multiple use relationship in the area consistent with the provisions of Section 3(b) (2) of the Wild Free-Roaming Horses and Burros Act of 1971 (1971 WFRHBA)".* Based on prior evaluations (2003 Rangeland Health Assessment for Soldier Meadows and Paiute Meadows), more recent monitoring data, and observations indicating that current wild horse's numbers do not allow for management of the public lands consistent with rangeland health, adjusting AML to the current population of wild horses within the Complex

would not result in a thriving natural ecological balance. For example, even though the grazing permittee has turned out no livestock grazing in the Warm Springs HMA for the past three years, impacts from the current wild horse population have been documented to water sources, riparian zones and vegetation that are not consistent with managing for healthy rangeland and habitat.

The current population of wild horses exceeds the identified carrying capacity for both wild horses and livestock combined in the Complex. Livestock and wild horse management decisions in 1993, 1994, 2000, 2003 and 2004 assessed and modified management where appropriate following consultation with the interested public, including Tribes, and US Fish and Wildlife Service. These FMUDs and Decisions detailed the adjustment/reduction of livestock AUMs and implementation of grazing systems, proper season of use and Allotment Specific Objectives. Refer to Section 3.3. Refer also to Table 11 in Section 3.3.2 which displays changes in AUMS allocated to livestock between 1982 and 2009.

The following table compares the total permitted livestock AUMs with the upper range of AML in AUMs and the total wild horse population in AUMs for 2008.³

Table 2: Comparison of Livestock and Wild Horse AUMs

Allotment	% of Allotment in HMA	Livestock AUMs	Upper Range of AML (AUMs)	March 2008 Horse Pop (AUMs)
Buffalo Hills	34	4,114	4,800*	6,984*
Leadville	99	1,291	1,512	2,184
Soldier Meadows	68	12,168	3,996	14,268
Paiute Meadows	51	4,299	1,116	2,580
Total		21,872	11,424	26,016
*These AUMs reflect the portion of the Calico Mountains HMA falling within the Buffalo Hills Allotment and do not include the Buffalo Hills HMA, as that HMA is not a part of the Complex gather proposal.				

Based on the September 2009 inventory, the current wild horse population is 3,040 wild horses for the entire Complex. This equates to 36,480 AUMs, which is higher than the total Complex carrying capacity of 33,296 AUMs for livestock and wild horses combined (21,872 AUMs + 11,424 AUMs = 33,296 AUMs).

This alternative is also inconsistent with the WFRHBA, which directs the Secretary to immediately remove excess wild horses. Livestock grazing can only be reduced or eliminated if BLM follows regulations at 43 CFR § 4100. Such changes to livestock grazing cannot be made through a wild horse gather decision, and are only possible if BLM revised all of the AMLs to allocate livestock forage to wild horses and to eliminate or reduce livestock grazing.

³ The September 2009 census is not included in Table 2 because data from that count has not yet been analyzed by grazing allotment. Instead, the information was collected with reference to the five HMAs and as a total count for the entire Complex.

Re-allocation of livestock AUMs to increase the wild horse AMLs to the current population would also not achieve a thriving natural ecological balance. In areas where there has been no livestock grazing, wild horse impacts that have been documented indicate that the current population is not resulting in healthy rangeland conditions. Furthermore, unlike livestock which can be confined to specific pastures, limited periods of use, and specific seasons-of-use so as to minimize impacts to vegetation during the critical growing season or to riparian zones during the summer months, wild horses are present year-round and their impacts to rangeland resources cannot be controlled through establishment of a grazing system, such as for livestock. Thus, impacts from wild horses can only be addressed by limiting their numbers to a level that does not adversely impact rangeland resources and other multiple uses.

While the BLM is authorized to remove livestock from HMAs “*if necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury*” (43 CFR § 4710.5), this authority is usually applied in cases of emergency and not for general management of wild horses or burros.

For the reasons stated above, this alternative was dropped from detailed analysis. Changes in forage allocations between livestock and wild horses would have to be re-evaluated and implemented through the appropriate decision-making processes to determine whether a thriving natural ecological balance can be achieved at a higher AML and in order to modify the current multiple use relationship established in the land-use plans.

Gathering the Complex to upper range of AML

Under this Alternative, a gather would be conducted to capture and remove enough wild horses to achieve the upper level of the AML (952 wild horses). A post-gather population size at the upper level of the AML would result in AML being exceeded following the next foaling season (spring 2010). This would be unacceptable for several reasons.

The AML represents “that ‘optimum number’ of wild horses which results in a thriving natural ecological balance and avoids a deterioration of the range.” Animal Protection Institute, 109 IBLA 119 (1989). The Interior Board of Land Appeals has also held that “Proper range management dictates removal of horses before the herd size causes damage to the range land. Thus, the optimum number of horses is somewhere below the number that would cause resource damage” Animal Protection Institute, 118 IBLA 63, 75 (1991).

The upper level of the AMLs established for the HMAs within the Complex represent the maximum population for which thriving natural ecological balance would be maintained. The lower level represents the number of animals to remain in the Complex following a wild horse gather in order to allow for a periodic gather cycle, and prevent the population from exceeding the established AML between gathers.

Data analyzed in the 2003 Allotment Evaluation for the Soldier Meadows and Paiute Meadows Allotments indicated that wild horse numbers in excess of AML were a causal factor for not meeting the standards for rangeland health. More recent monitoring data and observations indicate that at the current wild horse population, wild horses are continuing to cause impacts to

rangeland resources which prevent BLM from making significant progress in meeting the standards for rangeland health or to ensure a thriving natural ecological balance.

Additionally, gathering to the upper range of AML, would result in the need to follow up with another gather within one year, and could result in continued overutilization of vegetation resources and damage to important habitats. Frequent gathers would increase the stress to wild horses, as individuals and as entire herds. For these reasons, this alternative was eliminated from further consideration.

Control the excess wild horses with only the use of fertility control treatment

An alternative to gather a significant portion of the existing population (85%) and implement fertility control treatments only, without removal of excess horses was modeled using a two-year and three-year gather/treatment interval over a 20 year period. Based on this modeling, this alternative would not result in attainment of the AML range for the Complex and the wild horse population would continue to have an average population growth rate of 3.7% to 6.9%, adding to the current wild horse overpopulation, albeit at a slower rate of growth. This alternative would not decrease the existing overpopulation of wild horses, resource concerns would continue, and implementation would result in significantly increased gather and fertility control costs. This alternative would not meet the purpose and need and did not receive any further consideration.

Gather a portion of existing population, make an incremental reduction (500 horses) in the excess wild horses and implement fertility control treatments while evaluating habitat response

An alternative to gather a significant portion of the existing population (85%), remove an incremental portion of the population (500 horses) and implement fertility control was recommended through the public review process. Implementation of this alternative would reduce the existing population by 16-18% with the wild horse population would be anticipated to increase on an average rate of 15-20% annually. This rate of increase would fully offset the 500 horses that would be removed as of the 2010 foal crop and no significant progress would be made in reducing resource impacts from the current overpopulation of wild horses within the Complex. This alternative would not result in attainment of the AML range for the Complex as required by under the WFRHBA. This alternative was therefore eliminated from further consideration.

Make on-the-ground and individualized excess wild horse determination prior to removal

An alternative proposing to make on-the-ground and individualized excess wild horse determinations prior to removal was recommended through the public review process. Specifically, this alternative would involve a tiered gather approach, whereby BLM would first identify and remove old, sick or lame animals. Second, BLM would identify and remove horses for which adoption demand exists by qualified individuals, such as horses with unusual and interesting markings. Last, BLM would remove any additional excess horses necessary to bring the horse population back to AML. This proposed alternative is impractical, if not impossible, due to the size of the Complex, access limitations and challenges to approaching horses to make an individualized determination of suitability for removal. Making a determination of excess as to a specific horse, and then successfully gathering that horse, would result in significant labor and contracting costs to accomplish, assuming it could be done at all, which is not likely. This alternative would be impractical to implement (if not impossible), would be cost-prohibitive, and

would be unlikely to result in the successful removal of excess horses. This alternative was therefore eliminated from any further consideration.

What are alternative capture techniques instead of helicopter capture of excess wild horses exist

An alternative using capture methods other than helicopters to gather excess wild horses was suggested through the public review process. As no specific alternative methods were suggested, the BLM identified chemical immobilization, net gunning, and wrangler/horseback drive trapping as potential methods for gathering horses. Net gunning techniques normally used to capture big games also rely on helicopters. Chemical immobilization is a very specialized technique and strictly regulated. Currently the BLM does not have sufficient expertise to implement this method and it would be impractical to use given the size of the Complex, access limitations and approachability of the horses. Use of wrangler on horseback drive-trapping to remove excess wild horses can be fairly effective on a small scale but due to number of excess horses to be removed, the large geographic size of the Complex, access limitations and approachability of the horses this technique would be ineffective and impractical. Horseback drive-trapping is also very labor intensive and can be very harmful to the domestic horses used to herd the wild horses. For these reasons, this alternative was eliminated from further consideration.

3.0 THE AFFECTED ENVIRONMENT

This section of the EA briefly discusses the relevant components of the human environment which would be either affected or potentially affected by the Action Alternatives or No Action (refer to Tables 3 and 4 below). Direct impacts are those that result from the management actions while indirect impacts are those that exist once the management action has occurred.

3.1 General Description of the Affected Environment

The Complex comprises a total of approximately 550,000 HMA acres (public and private) and is considered the primary gather area. It includes the Granite Range, Calico Mountains, Trough Mountain and Black Rock Range topographic features. It is bound on the east by the Black Rock Desert, on the north by the U.S. Fish & Wildlife Sheldon Antelope Refuge, on the west by adjacent HMAs administered by the Surprise Field Office in Cedarville, California and by the small town of Gerlach, Nevada on the south. However, as wild horses have moved outside of the Complex into non-HMA areas in their search for water, forage and space, the potential gather area includes area outside the HMAs (see Map 1).

Elevations within the Complex range from 3,920 feet along the Black Rock Desert to 9,056 feet at Granite Peak. Climate within the Complex is characterized by warm dry days, cool nights and low yearly precipitation that range from 4 inches at lower elevations to approximately 16 inches at higher elevations. Most precipitation occurs as winter snow. However in recent years, the Complex has experienced drought conditions with below normal snowpack.

Vegetation varies from salt desert shrub communities at lower elevations to big sagebrush/bunch grass communities at higher elevations. Typical species at lower elevations include shadscale, bud sage, winter fat, black greasewood, squirreltail, and Sandberg's bluegrass. Species typical in

higher elevations include low sagebrush, Wyoming big sagebrush, mountain big sagebrush, bitterbrush, rabbitbrush, Utah juniper, mountain mahogany, quaking aspen, needle grass, blue bunch wheatgrass, basin wildrye, squirreltail, Indian paintbrush, and phlox. Historic wildfire scars within the Black Rock West HMA mainly support perennial bunchgrasses. Fire scars within the Granite Range HMA support primarily cheatgrass.

Numerous small perennial streams and springs occur throughout the Complex. However, the Calico Mountains, Warm Springs Canyon, and southern portion of the Black Rock Range HMAs have extremely limited water sources due to scarcity of sites and low flows. Livestock water developments (e.g., wells, troughs and dirt reservoirs) authorized by the BLM are maintained under a cooperative agreement with the livestock permittee's. These water developments are important sources of water for wild horses and wildlife as well as livestock.

In the Great Basin high desert of Nevada the average annual precipitation is often less than 11 inches (which defines the term desert). Drought conditions occur as frequently as 6 out of every 10 years. Drought conditions have been especially serious in the Complex since the most recent gather in 2005. Drought is defined by the Society for Range Management as "...prolonged dry weather when precipitation is less than 75% of the average amount" (SRM 1989).

Data were analyzed from the Gerlach, Leonard Creek Ranch and Denio Junction weather stations in and near the Complex. Data collected from all three of these stations met the definition of drought for two or three years between 2006-2008. Unfortunately, data was unavailable for the Denio Junction station in 2007, and substantial monthly totals were missing for the Leonard Creek Ranch station for seven months during the same year.

Currently, the Gerlach station indicates drought conditions for the period of January through October 2009 when compared with the period of record average for the same period. Denio Junction station indicates 97% relative to the period of record average for January through October, and Leonard Creek 119% for January through June 2009 (July-October were not available and would be expected to bring the percent of period of record average down).

Refer to the below table which displays the period of record average for each station as well as the precipitation documented for the period between 2006-2009 and the percent of the average received.

Table 3: Precipitation in Inches

Station	Period of record average (inches)	2006	2007	2008	2009
Denio Junction (1951-2009)	9.07	5.37 (61%)	No data Available	4.54 (50%)	7.01 (Jan-Oct)
Leonard Creek Ranch (1954-2009)	8.74	5.64 (65%)	0.83 (9%)*	7.19 (82%)	6.14 (Jan-June)
Gerlach (1948-2009)	7.60	6.75 (89%)	2.72 (36%)	3.87 (51%)	4.2 (Jan-Oct)

*Seven months of data for 2007 for the Leonard Creek Ranch station were missing many days of data. This figure reflects the available data only.

As indicated by the long-term precipitation data for these weather stations, drought conditions experienced between 2006 to the present have resulted in the lowest recorded precipitation since 1985 for the Leonard Creek Ranch and Gerlach stations and since 1990 for the Denio Junction station. Precipitation data obtained from <http://www.wrcc.dri.edu/summary/Climsmnv.html>.

3.2 Supplemental Authorities (Formerly referred to as Critical Environmental Elements of the Human Environment)

To comply with the National Environmental Policy Act, the following elements of the human environment are subject to requirements specified in statute, regulation or executive order and must be considered.

Table 4: Supplemental Authorities (Critical Elements of the Human Environment)

Supplemental Authorities	Present	Affected	Rationale
Air Quality	YES	NO	The proposed gather area is not within an area of non-attainment or areas where total suspended particulates exceed Nevada air quality standards. Areas of disturbance would be small and temporary.
Areas of Critical Environmental Concern (ACEC's)	NO	NO	Not present.
Cultural Resources	YES	YES	Trap sites and/or holding corrals would be placed in already disturbed areas or would be inventoried prior to use. Locations would avoid cultural resource sites. However, other potential impacts are discussed below.
Environmental Justice	NO	NO	Not affected.
Floodplains	NO	NO	Resource not present.
Invasive, Nonnative Species	YES	NO	Any noxious weeds or non-native invasive weeds would be avoided when establishing trap and/or holding facilities, and would not be driven through. Noxious weed monitoring at trap/holding sites would be conducted and applicable treatment of weeds would occur per Noxious Weed Control EA#NV-020-02-19 as needed.
Migratory Birds	YES	YES	Discussed below.
Native American Religious Concerns	YES	YES	Discussed below.

Supplemental Authorities	Present	Affected	Rationale
Prime or Unique Farmlands	NO	NO	Resource not present.
Threatened & Endangered Species	YES	YES	Discussed below.
Wastes, Hazardous or Solid	NO	NO	Not present.
Water Quality (Surface/Ground)	YES	YES	Surface water would be affected and is discussed below. Ground water would not be affected.
Wetlands and Riparian Zones	YES	YES	Discussed below.
Wild and Scenic Rivers	NO	NO	Resource not present.
Wilderness	YES	YES	Discussed below.

Critical elements identified as present and potentially affected by the Action Alternatives (Alternatives 1-2) and/or the No Action Alternative include: Cultural Resources, Migratory Birds, Native American Religious Concerns, Threatened & Endangered Species, Water Quality, Wetlands and Riparian Zones, and Wilderness. Additional discussion is included in the following sections.

3.2.1 Cultural Resources

A complete inventory of archeological sites in the Complex has not been completed; the gather area covers a wide area and includes a diversity of cultural resources from different time periods. Previous inventories have identified pre-historic sites (rock art sites, lithic scatters, isolated projectile points, etc.) in the area. Two of the trap site/holding areas are near some of the oldest recorded archaeological sites in the Winnemucca District, near extinct Lake Parman. The highest concentration of prehistoric sites is in association with permanent and intermittent water sources. There are several trap site/holding areas near Soldier Meadows, which is rich in both prehistoric and historic resources. Historic sites associated with ranching and mining are known to occur in this area. In addition, segments of both the 1852 Nobles Route, a cutoff from the Applegate-Lassen Trail, and the Applegate-Lassen Trail itself (a National Historic Trail) pass near some of the gather sites. These trails were some of the most heavily traveled wagon routes for nineteenth century emigrants to California and Oregon.

3.2.2 Migratory Birds

Neo-tropical migrant bird species are those species that breed in the temperate portions of North America and winter in the tropics in either North or South America. They are protected by international treaty and additional emphasis on maintaining or improving their habitats is provided by Executive Order #13186. Within the Great Basin and the project area, quality riparian habitats and healthy sagebrush communities with inclusions of trees and shrubs are required for healthy neo-tropical migrants' populations. A migratory bird inventory has not been completed for the entire Complex. One point count transect has been set up on and adjacent to

aspen habitats within the Stanley Camp Riparian pasture. The habitats sampled within the riparian pasture are not representative of the vast majority of horse habitats within the Complex. Migratory birds observed on the nearby point count transect outside the Complex but in similar environments include: black-throated sparrow, rock wren, sage sparrow, Western meadowlark, horned lark, Say's phoebe, lark sparrow, violet-green swallow, tree swallow, Bullock's oriole, and black-billed magpie. Other possible inhabitants of this habitat include Brewer's blackbird, Brewer's sparrow, burrowing owl, canyon wren, gray flycatcher, green-tailed towhee, loggerhead shrike, sage thrasher, and vesper sparrow (Great Basin Bird Observatory, 2003). The burrowing owl, loggerhead shrike, and vesper sparrow are BLM designated sensitive species and are discussed in section 3.3.3.

3.2.3 Native American Religious Concerns

The proposed action is within the traditional territory of the kamodökadö ("jack-rabbit eaters"), the atsakudöka tuviwarai ("red butte dwellers"), and the aga' ipañinadökadö ("fish lake eaters") or madökadö ("wild onion eaters") bands of Northern Paiute peoples. These bands are identified with modern groups that include the Summit Lake Paiute Tribe, the Fort McDermitt Tribe, the Pyramid Lake Paiute Tribe and the Susanville Indian Rancheria. There are no known traditional cultural properties or sacred sites in the identified trap site/holding areas. However, water sources are considered sacred by Native American tribes and riparian zones, in particular, are rich sources of plants for medicinal and other uses. Springs at Soldier Meadows are considered especially important to the Summit Lake Tribe as places of religious or spiritual significance, but no traps or holding areas will be established in riparian areas around springs.

3.2.4 Threatened & Endangered Species

A list of federally listed, proposed or candidate species was requested from the U.S. Fish and Wildlife Service for the proposed project area (2009). The Fish and Wildlife Service responded that the following species may be found within the proposed project area: 1) Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*, LCT) as a threatened species, 2) Desert Dace (*Eremichthys across*) as a threatened species, 3) Elongate mud meadows springsnail (*Pyrgulopsis notidicola*) as a candidate species, and 4) Soldier Meadow cinquefoil (*Potentilla basaltica*) as a candidate species. There are no other known Threatened or Endangered Species in the proposed project area.

Lahontan Cutthroat Trout - Several streams within the Complex support existing populations of Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*, LCT). LCT is a federally listed Threatened species since 1975 (Federal Register Vol. 40, p. 29864). Mahogany, Summer Camp, Snow, and Colman Creeks exist entirely within the Soldier Meadows Allotment (SMA) and currently are occupied by LCT. North Fork Battle Creek exists within the Paiute Meadows Allotment and is currently occupied by LCT. Recent monitoring of utilization and stream bank trampling shows wild horse impacts on Upper Snow and Upper Coleman Creek

Several streams within the Complex have been identified as priority streams for LCT recovery in the 1995 USFWS LCT Recovery Plan and the 1999 NDOW Species Management Plan for LCT. The streams identified are as follows: Donnelly Creek (SMA); Bartlett and Paiute Creeks

(Paiute Meadows Allotment); Cottonwood, Granite, Red Mountain, and Rock Creeks (Buffalo Hills Allotment). There is currently no known LCT within these streams.

Desert Dace - The hot springs and their outflows to the south and west of the Soldier Meadows Ranch are the only known habitats for the desert dace (*Eremichthys across*). The desert dace has been federally listed as Threatened since 1985 (Federal Register Volume 50, p. 50304,) and is the only member of the genus, *Eremichthys*. At the time of listing, critical habitat was also listed, that encompasses 50 feet on each side of designated thermal springs and their outflow streams (USFWS 1997). The desert dace occupied habitat was fenced off in 2005 and the potential trap/holding sites are outside of the fenced area. For this reason, the proposed activities are judged to have no impact on this species or its habitats and will be dismissed from further analysis.

Elongate mud meadows springsnail – Numerous spring systems exist within the Hot Springs Area of the Soldier Meadows area, which range from cold (near or below mean air temperature), thermal (5-10° C above mean air temperature), or hot (more than 10° C above mean air temperature) (see Sada et al. 2001). Within the SMA several springsnails, which are small (1-8 mm high) mollusks that require high quality water (Sada et al. 2001), have been identified as being unique to the area. The majority of these species are members of the genus *Prygulopsis*, with one species belonging to the genus *Fluminicola*. These genera prefer cool, flowing water and gravel substrate (Sada et al. 2001). One species, the elongate mud meadows pryg is listed by the USFWS as a candidate species for protection under the ESA. The primary areas of known springsnail concentrations on public lands occur in the vicinity of the desert dace critical habitats that were fenced to exclude livestock and wild horses in 2005. The proposed action is outside the fenced area for the species, and therefore there is no impact on the springsnail species or its habitats and will be dismissed from further analysis.

Soldier Meadow cinquefoil – *Potentilla basaltica* is an herbaceous perennial plant that grows primarily in the Soldier Meadows area. It is currently listed by the USFWS as a candidate for listing as threatened under the Endangered Species Act (Federal Register Vol. 67, p. 40662). The plant grows from prostrate stems extending from a low basal rosette. Bright yellow flowers occur in loose clusters at the end of the stems. The species blooms from late spring and summer. The species is associated with moist saline/alkaline soils associated with alkali seeps and meadows. The species appears to favor sites with micro-relief in saturated soils to obtain root aeration. Surveys completed by Nachlinger in 1990 and repeated by FWS in 2002 and BLM in 2009 indicate stable to increasing populations. Most potential habitat is occupied, except where vehicle trails cross through small areas of otherwise suitable habitat. The current threats are associated with recreation use of occupied habitat. Basalt cinquefoil also exhibits the ability to colonize previously disturbed areas, including old livestock corrals and the raised rim of hoof prints in wet soils. All documented populations within the project area are outside designated HMAs and within exclosures constructed in part to eliminate wild horse impacts on the species. For this reason, the proposed activities are judged to have no impact on this species or its habitats and will be dismissed from further analysis.

3.2.5 Water Quality (Surface and Ground)

The Complex contains an estimated several hundred springs with spring brooks associated with larger springs that range from a few feet to miles in length. Grazing at spring sources and along the associated spring brooks by large ungulates (cattle and wild horses) typically lead to decreases in water quality due to increased nutrient loading, water temperatures, bacterial contamination and sediment loading. When faced with limited water sources, wild horses will also paw with their hooves in springs to try and acquire more water. Native wildlife species also make contributions to bacterial loading. The decreases in water quality result from surface disturbance associated with hoof action, removal of vegetation, trampling, compaction, and deposition of manure. The Nevada Division of Environmental Protection has not listed any of the water bodies within the Complex on the State of Nevada List of Impaired Water Bodies (Section 303(d) of the Clean Water Act).

Spring assessment inventories conducted in the complex between 2006 and 2008 included qualitative and quantitative measures that evaluated the condition of springs and associated values. Measures included estimation of surface disturbance factors including those by wild horses and livestock, measurement of stubble height of remaining herbaceous vegetation and estimation of total bare ground. A total of 57 individual assessments were conducted within the Complex or in areas immediately adjacent to the complex and where Complex horses are known to graze. Of these, 32 identified disturbances by only wild horses, five identified disturbance by only livestock, nine included disturbance values for both livestock and wild horses, and 11 did not include disturbance by either cattle or horses. A summary of this data is shown in the following table.

Table 5: Summary of Spring Assessment Inventories

Summary					
Site/Usage	% Site Disturbance		Average Stubble Height (cm)	% Bare Ground	Number
	Livestock	Horses			
Cattle	40.0		41.4	42.0	5
Both	38.5	50.5	12.5	32.8	9
Horses		67.0	18.3	44.3	32

One-way analysis of variance (ANOVA) was used to compare cattle versus horse site disturbance, average stubble height and percent bare ground. The results showed statistically significant differences for percent Site Disturbance and Average Stubble Height and no significant differences for percent Bare Ground. The data indicates that horses appear to have more impact on spring systems than livestock. Although specific water quality data has not been collected, wild horse impacts (i.e., hoof action, removal of vegetation, trampling, compaction, and deposition of manure) to riparian areas that would affect water quality have been documented. The following photos depict degradation to riparian areas as the result of trampling and heavy utilization, attributed solely to wild horses in photo 5 and primarily to wild horses in photo 6.



Photo 5. Summit Spring, Black Rock Range West HMA, low spring flows, 10/08.



Photo 6. Burnt Spring, heavy riparian utilization, Black Rock Range East HMA, 10/08



Photo 7. Utilization cage shows potential for growth versus amount of forage removed by heavy wild horse utilization in non-livestock grazed area. Black Rock Range, 10/08.



Photo 8. Poor quality water in small dirt catchment, Calico Mountains HMA, 8/08.

3.2.6 Wetlands and Riparian Zones

Many of the riparian zones within the Complex are associated with spring systems and associated spring brooks. Large spring brooks with perennial flows typically contain fisheries including Lahontan cutthroat trout as described in Section 3.2.4. Small spring systems with short brooks or no brooks are scattered throughout the Complex and provide water, forage and habitat diversity for native wildlife and livestock and wild horses. These systems typically occupy less than 1% of the landscape but are disproportionally important for biodiversity and users of the landscape including humans. As described in Section 3.2.5, spring assessments conducted in 2006-2008 evaluated 57 spring systems. Systems with cattle or wild horse use had more site disturbance, lower stubble heights, and increased levels of bare ground when compared to ungrazed systems. Systems where livestock disturbance was recorded without horse disturbance typically had greater stubble heights and lower disturbance levels than sites where horse

disturbance was recorded without livestock disturbance (Table 5). This is consistent with patterns of horse and livestock use in the sampled areas. Livestock are only on the range for a few months at a time in the sampled areas, while horses use these areas year-long unless heavy snow pushes them to lower elevations.

Stubble height is a measure of relative utilization. Low stubble height correlates to high utilization. Stubble remaining on wetland and riparian zones is important for maintaining good conditions on these sites. Stubble protects the soil surface from erosion and provides cover and forage for wildlife.

The cause of disturbance (e.g. livestock vs. wild horse) was estimated when clear evidence to distinguish the use was observed (e.g. hoof prints, viewing animals, or droppings). When clear evidence was not available to distinguish between livestock or wild horses, no assignment of disturbance could be made.

In addition to the assessed systems there are additional meadows that were visited that had no surface water during the late summer or fall sampling period. Photo 7 shows low stubble on one of these meadows associated with high levels of wild horse forage utilization.

Spring meadow surveys and professional observations show that existing levels of wild horse use within the Complex has adversely affected wetlands and riparian vegetative cover and composition, vertical structure, production, and water quality through site disturbance, utilization, and compaction, preventing attainment of Proper Functioning Condition (PFC) or significant progress toward attaining PFC. Wild horses contributed to the non-attainment of RAC Standard 2 (riparian standard) for the Soldier Meadows and the Paiute Meadows allotments Rangeland Health Assessments completed in 2003, and more recent observations and data show that this standard is not being met in riparian areas within the Complex as a result of wild horse impacts.

3.2.7 Wilderness

The project area includes 179,300 acres within the East Fork High Rock Canyon, High Rock Lake, North Black Rock Range, Pahute Peak, and the Black Rock Desert Wilderness Areas. These wilderness areas were designated by the *Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Act of 2000* (Refer to Map 1). The Wilderness Act of 1964 mandates that wilderness areas be administered for the use and enjoyment of the American people in such a manner as would leave them unimpaired for future use and enjoyment as wilderness, and to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

The Wilderness Act mandates that wilderness areas be managed in such a manner as to maintain or enhance the values of naturalness, opportunities for solitude, opportunities for primitive or unconfined recreation, and any special features found in the areas. Several special features were specifically mentioned for the affected Wilderness Areas in the BRHR NCA Act of 2000. They include; wagon ruts, historic inscriptions, prehistoric and historic Native American sites, large natural potholes, threatened fish and sensitive plants, and a largely untouched emigrant trail

viewshed.

3.3 Additional Affected Resources

In addition to the critical elements above, the following resources may be affected by the Action Alternatives (Alternatives 1-2) and/or the No Action Alternative: livestock management, sensitive and/or special status species, soils, vegetation, wild horses, wildlife, and wilderness study areas.

Table 6: Other Resources Checklist

OTHER RESOURCES	Present	Affected
Fisheries	YES	YES
Rangeland Management	YES	YES
Special Status Species	YES	YES
Soils	YES	YES
Vegetation	YES	YES
Wild Horses	YES	YES
Wilderness Study Area	YES	YES
Wildlife	YES	YES

3.3.1 Fisheries

Several of the streams in the proposed project area currently contain salmonid species. The streams with salmonids that have not been discussed in section 3.2.4 are Bartlett Creek, Granite Creek, and Red Mountain Creek. These streams include a variety of salmonids, including: rainbow trout (*Oncorhynchus mykiss*) and brook trout (*Salvelinus fontinalis*). Refer to sections 3.2.4 and 3.2.5 for more information on impacts to fisheries habitat from horses.

3.3.2 Rangeland Management

The Buffalo Hills, Leadville, Paiute Meadows, and Soldier Meadows Allotments are within the Complex area. The following table identifies the public and private lands within these Allotments.

Table 7: Land Status in Acres

Allotment	Public Land - BLM	Private Land	Total
Buffalo Hills	440,573	42,997	483,570
Leadville	54,013	2,406	56,419
Paiute Meadows	168,538	7,864	176,402
Soldier Meadows	331,691	9,706	341,667

There are a total of five livestock operators (permittee's) currently authorized to graze livestock in these allotments annually. These permittee's can use a combined total of 21,872 Animal Unit Months (AUMs) yearly in the four allotments. An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month. All of these allotments consist of various pastures that are grazed seasonally following established grazing systems; however, the season of use may vary (by 1-2 wks.) annually based upon forage availability, drought conditions and other management criteria.

BLM issued FMUDs for all four of these allotments in 1993, 1994, 2003 and 2004, following the analysis of monitoring data and a decision-making process that included public involvement and input. These FMUDs primarily modified livestock grazing systems, further defined AMLs for wild horses and burros (burros only in the SMA) and identified allotment specific objectives and Standards for Rangeland Health. Rangeland Health Assessments were completed for the Soldier Meadows and Paiute Meadows allotments in 2003. Livestock grazing systems have been further modified in some of these allotments subsequent to these FMUDs.

The following table identifies the specific livestock numbers, season of use and AUMs currently authorized for livestock within the Buffalo Hills, Leadville, Paiute Meadows, and Soldier Meadows Allotments respectively.

Table 8: Permitted Livestock use in Allotments that include the Calico Mountains Complex⁴

Allotment	Permittee	Livestock	Season of Use	AUMs
Buffalo Hills	1	613 Cattle	4/1 - 10/15	3,984
	2	20 Cattle	4/1 - 10/15	130
Leadville	3	235 Cattle	5/1 - 10/15	1,291
Paiute Meadows	4	524 Cattle	3/15 - 10/6	3,549
		300 Cattle	11/1 - 1/15	750
Soldier Meadows	5	800 Cattle	1/16 - 12/15	12,168

The following table displays each HMA's acreage within the four allotments and total acreages of allotments and HMAs within the Complex (Map 2).

⁴ Table 8 represents permitted livestock grazing for the allotment as a whole, which includes both HMA areas and non-HMA areas within (see Table 9).

Table 9: HMA Acres within Allotments

HMA	Allotments					
	Buffalo Hills	Leadville	Soldier Meadows	Paiute Meadows	Non-BLM	Total HMA*
Granite	103,804	-	-	-	-	103,804
Calico	57,262	57,059	46,451	-	-	160,831
Warm Spring	-	-	91,407	-	246	91,710
Black Rock West	-	-	93,010	8	77	93,206
Black Rock East	-	-	72	87,687	-	93,438
Non HMA	311,768	61	111,010	85,932	12,293	
Total	472,834	57,120	341,950	173,627	12,616	

* Due to computerized mapping rounding, small slivers of acreage for these HMAs appear in the Knott Creek and Bare Allotments that are not included in this table. Small portions of the Pine Forest Allotment within the Black Rock East HMA are also not included.

As shown in Table 9, allotments acreages do not correspond with HMA acreages, as these areas do not share identical boundaries.

The following table displays the percent of each allotment that is within a HMA and compares the total AUMs allocated to livestock, the wild horse AMLs (converted to AUMs), and the 2008 wild horse population AUMs.

Table 10: Horse Population by Allotment (in AUMs)

Allotment	% of Allotment in HMA	Livestock AUMs	Upper Range of AML (AUMs)	March 2008 Horse Pop (AUMs)
Buffalo Hills	34	4,114	4,800*	6,984*
Leadville	99	1,291	1,512	2,184
Soldier Meadows	68	12,168	3,996	14,268
Paiute Meadows	51	4,299	1,116	2,580
Total		21,872	11,424	26,016

* These AUMs reflect the portion of the Calico Mountains HMA falling within the Buffalo Hills Allotment and do not include the Buffalo Hills HMA, as that HMA is not a part of the Complex gather proposal.

Based on the September 2009 inventory, the current wild horse population is 3,040 wild horses for the entire Complex. This equates to 36,480 AUMs, which is higher than the total Complex carrying capacity of 33,296 AUMs for livestock and wild horses combined (21,872 AUMs + 11,424 AUMs = 33,296 AUMs).

The Sonoma-Gerlach (SG) and Paradise-Denio (PD) Management Framework Plans (MFP) (1982) identified the level of livestock grazing authorized for the allotments within the Complex

area. The Buffalo Hills, Leadville and Soldier Meadows Allotments were in the SG Resource Area and the Paiute Meadows Allotment was in the PD Resource Area. Since that time there have been several management decisions that have guided the multiple use management of the allotments in the Complex area. The allotment specific FMUDs issued in the mid-nineties established the AML for wild horses in the allotments in the Complex area. The FMUDs for Paiute Meadows and Soldier Meadows allotments which were issued in 2003 and 2004 respectively re-affirmed the wild horse AMLs and modified the livestock grazing systems in order to meet or make significant progress in meeting rangeland health standards. In 2008 a grazing decision was issued for the Soldier Meadows allotment again modifying the livestock grazing system.

The following table illustrates the livestock Animal Unit Months (AUMs) authorized by the MFPs in 1982 compared to the current (2009) levels of grazing use.

Table 11: Livestock AUMs

Allotment	1982 AUMs	2009 AUMs
Buffalo Hills	11,920	4,114
Leadville	2,567	1,291
Paiute Meadows	7,827	4,299
Soldier Meadows	16,070	12,168
Totals	38,384	21,872

The following table reflects the actual use (or billed use) by livestock within the allotments in the Complex.

Table 12: Grazing Use (AUMs) by Year

Allotment	2006	2007	2008	2009	Active Use
Buffalo Hills	4,159*	3,975	3,794*	3,874	4,114
Leadville	1,298*	1,133	1,150	1,186	1,291
Paiute Meadows	4,097	3,742	3,531*	4,298*	4,299
Soldier Meadows	3,089	881	0	0	12,168
Total	12,643	9,731	8,857	9,331	21,872

*Numbers are from billed use, since actual use data was unavailable. The Buffalo Hills Allotment includes 39 AUMs of Exchange of Use for private lands in 2006 and 2008. Numbers in bold show non-use of AUMs by permittee's due to drought conditions and/or excessive numbers of horses.

As the above table shows, the permittee's on these allotments have not utilized the full active AUMs available for livestock use within the Complex. Total actual or billed use by livestock within the Complex has been less than the total AUMs allocated to wild horses at the upper end of AML (952 wild horses or 12,462 AUMs) with the exception of 2006, and has been considerably lower than the AUMs actually used by wild horses at existing population levels as shown in Table 9.

Soldier Meadows Allotment

The Black Rock Range West, Warm Springs and a portion of the Calico Mountain HMAs are within the SMA. The January 1994 FMUD allocated 12,168 AUMs to livestock and 5,034 AUMs to wild horses and burros. This allocation and the wild horse AMLs for Warm Springs Canyon HMA, Black Rock Range West HMA, and a portion of the Calico Mountains HMA were re-affirmed in the 2004 FMUD. Livestock management was also modified by the 2004 FMUD and most recently, by a 2008 Grazing Decision.

The SMA January 14, 2008 Livestock Grazing Decision (Decision) implemented a two year rest/rotation grazing system that authorizes livestock grazing in various use areas in the SMA. Warm Springs is the largest and most accessible HMA in the allotment and lies primarily within the Warm Springs Use Area. The Decision allows an initial stocking level of 800 cows (1999 AUMs) and a season of use from 05/01 to 07/15 during odd numbered years (2009) and complete rest from livestock grazing during even numbered years (2008) in the Warm Springs Use Area.

The permittee has voluntarily taken non-use (no livestock grazing on public lands) in the Warm Springs Use Area for the past three years (2007 - 2009) due to drought, limited forage, wild horses in excess of AML and horse impacts to existing water projects. The permittee has taken non-use throughout the SMA for the past two years due to horse population exceeding AML. The September 2009 aerial inventory resulted in found 888 wild horses (10,656 AUMs) observed in the Warm Springs Canyon HMA within the SMA.

The current population of wild horses in just one of the three HMAs (i.e., the Warm Springs Canyon HMA) within this allotment thus exceeds the allocated AUMs for all wild horses in the Soldier Meadows Allotment by a factor of two. Census numbers indicate that at the current population levels, wild horse use alone in the Soldier Meadows Allotment is exceeding the total carrying capacity established for wild horses, livestock and wildlife combined.

Buffalo Hills Allotment

The February 1993 FMUD allocated 4,114 AUMs to livestock and 8,568 AUMs to wild horses.

The 1993 FMUD established a four pasture rest rotation grazing system on the Buffalo Hills Allotment. Of the three pastures which encompass the Calico and Granite HMAs, two were rested from livestock use in 2007 and 2008. In 2009, the Granite pasture was rested from livestock use. When these pastures are rested from livestock grazing, use would be attributed to only wild horses and wildlife.

Leadville Allotment

The January 1994 FMUD allocated 1,291 AUMs to livestock and 1,512 AUMs to wild horses.

Paiute Meadows Allotment

The April 1993 FMUD allocated 3,550 AUMs to livestock and 1,116 AUMs to wild horses.

The Paiute Meadows FMUD issued October 15, 2003 re-affirmed the wild horse AML for the Black Rock Range East HMA and allocated 4,299 AUMs to livestock, reinstating 750 AUMs.

Since 2006 the permittee has taken some levels of non-use for conservation and protection due to drought conditions and lack of forage. For the past three years the permittee has also hauled water due to drought conditions and to improve livestock distribution within the allotment.

3.3.3 Soils

A wide range of soils occur within the complex, ranging from saline-alkaline soils associated with valley bottoms to deep loamy soils at higher elevations in the mountain ranges. Soil development generally occurred under low precipitation regimes resulting in relatively shallow soils.

Trailing and hoof action by wild horses has the potential of accelerating erosion following intense storms or snow melt. Aerial monitoring indicates heavy and increasing trailing by wild horses between limited water sources and foraging areas. Heavy wild horse utilization and trailing are occurring in the Complex and are decreasing vegetative cover, particularly in areas of water sources, resulting in increased compaction which increases run off and soil erosion and decreased soil productivity. Wild horse populations in the Soldier Meadows and Paiute Meadows allotments contributed to non-attainment of RAC Standards one (soils), two (riparian), and four (vegetative/habitat) assessed within the 2003 Rangeland Health Assessments. Based on professional judgment and more recent observations within these allotments and other parts of the Complex, the types of impacts documented in the 2003 Rangeland Health Assessments are still occurring due to the over-population of wild horses in excess of established AML.

3.3.4 Special Status Species

Both Threatened and Endangered Species (addressed in 3.2.4) and Sensitive Species (addressed below) are considered Special Status Species. No on-the-ground field investigation was conducted for sensitive/protected plant, or animal species including birds. However, the Nevada Natural Heritage Program (NNHP) database (March, 2008) and the Nevada Department of Wildlife (NDOW) Diversity database (August, 2007) were consulted for the possible presence of endangered, threatened, candidate and/or sensitive plants or animal species. NDOW data show observances of golden eagle, prairie falcon, northern goshawk, and burrowing owl within the Complex. The NNHP database showed no observances of Special Status Species within the Complex.

Sensitive Species

The following designated BLM sensitive animal or plant species are described, as they have either been seen in the Complex or the area contains habitat characteristics conducive to these species.

Bats

Several species of bats may occur in this area. Most bats in Nevada are year-round residents. In general terms, bats eat insects and arthropods during the warmer seasons and hibernate in underground structures during the cooler seasons. Bats commonly roost in caves, mines, outcrops, buildings, trees and under bridges. Bats may eat flies, moths, beetles, ants, scorpions, centipedes, grasshoppers, and crickets. Bats thrive where the plant communities are healthy enough to support a large population of prey (Bradley et al 2006). Healthy riparian communities

with high water tables and tall vegetation leading to high flying insect populations creates favorable foraging habitat for bats.

Burrowing Owl

Burrowing owls are known to occur within this area. Burrowing owls prefer open, arid, treeless landscapes with low vegetation. They are dependent upon burrowing mammal populations for maintenance of nest habitat and choose nesting areas based on burrow availability (Floyd et al 2007). These birds are highly adaptable and readily nest in open disturbed areas such as golf courses, runways, and industrial areas that border suitable habitat (Neel, 1999). Dense stands of grasses and forbs within owl home ranges support populations of rodent and insect prey. Urbanization is the biggest threat to this species as suitable habitat is converted to non-habitat for human use (Floyd et al 2007).

Greater Sage-grouse

Greater sage-grouse is a BLM sensitive species. The Complex contains approximately 408,000 acres of summer habitat, 460,000 acres of nesting habitat and 506,000 acres of winter habitat. Key habitat is designated for those areas that support all the habitat requirements to support sage-grouse populations. Approximately 15 active leks exist within the Complex. Leks are communal breeding ground for sage-grouse and are commonly considered to be the center of nesting activity. Sage-grouse require large expanses of sagebrush with good under stories of forbs and grasses. Sagebrush provides nesting and hiding cover and forage for much of the year. Forbs provide spring nutrition and grasses provide visual screening for nests. Additionally wet meadows are needed to provide green forbs when other sites dry out, and to provide water and insects for the chicks during the hot summer months.

Wild horses are affecting sage-grouse habitat through heavy utilization of upland grasses and meadows used by sage-grouse for nesting and summer brood rearing habitat.

Pygmy Rabbit

In the Great Basin, the pygmy rabbit is typically restricted to the stands of tall sagebrush on deep loamy soils. Potential habitat is present within the Complex, but there has been no inventory for pygmy rabbits in this area so their actual presence is unknown. Surveys have been completed to the north and west of the Complex during 2005 and 2006. No rabbits or signs of their occupation were observed (Larrucea, 2007).

Raptors

Golden eagle, prairie falcon, and northern goshawk have been observed in the Complex. Golden eagles are primarily cliff nesters and would utilize the area to forage for prey species such as jackrabbits and other small mammals. Golden eagles are protected under the Bald and Golden Eagle Protection Act. Nevada's Golden eagle population is thought to be stable to increasing. They are widespread and frequently encountered (Floyd et al 2007).

The prairie falcon may be found foraging in sagebrush habitats that have cliffs in close proximity for nesting. They prey on small mammals and birds, especially horned lark. Populations experienced declines in the 60's and 70's but appear to be stable now in the West (Paige and Ritter 1999).

The Northern goshawk is a forest hawk inhabiting coniferous and aspen forests. One sighting has been reported in the Complex. This individual would have been migrating to a winter area and not occupying the area for any length of time. No nesting, breeding, or foraging habitat exists within the Complex.

Vesper Sparrow

The vesper sparrow may be found in this area since it typically inhabits sagebrush-grass vegetative communities at the higher elevations. The vesper sparrow forages on the ground and eats mostly seeds from grasses and forbs and will also eat insects when they are available. The vesper sparrow responds negatively to heavy grazing in sagebrush/grasslands. In these habitats, it benefits from open areas with scattered shrubs and a cover of good bunchgrasses for nest concealment, since it is a ground nester (Paige and Ritter 1999).

Basalt cinquefoil

All documented populations of Basalt cinquefoil, a BLM sensitive species, found within the Complex are outside designated HMAs and within exclosures constructed, in part, to eliminate wild horse impacts on the species.

3.3.5 Vegetation

Vegetation varies from salt desert shrub communities at lower elevations to big sagebrush/bunch grass communities at higher elevations. Typical species at lower elevations include shadscale, bud sage, winter fat, black greasewood, squirreltail, and Sandberg's bluegrass. Species typical in higher elevations include low sage, Lahontan sagebrush, Wyoming big sagebrush, mountain big sagebrush, bitterbrush, rabbit brush, Utah juniper, needle grass, blue bunch wheatgrass, basin wildrye, squirreltail, Indian paintbrush, and phlox.

Ecological Site Inventories were conducted for Leadville in 1987, Soldier Meadows in 1991, Paiute Meadows in 1992, and Buffalo Hills in 1993, and remain largely representative of current vegetative conditions. Several fires have occurred in the Complex. Sites with high levels of invasive species, lower elevation sites with past fires and areas in the vicinity of water sources were rated in lower conditions. Wetland and riparian sites, particularly those associated with small spring meadow areas were also typically rated in lower conditions.

Riparian stream communities dominated by woody vegetation, primarily willows and aspens, typically have better vegetation conditions than those dominated by herbaceous vegetation. See 3.2.6.



Photo 9. Heavy utilization, basin wildrye, 8/08.

Field observations and monitoring data show current population of wild horses is resulting in situations of heavy utilization of upland and riparian vegetation contributing to less than desirable conditions and allotment utilization objectives not being met. Additionally, lower elevation winter habitat in low condition class has limited forage that is inadequate to support the current population of wild horses, particularly during severe winters. Wild horse populations in

the Soldier Meadows and Paiute Meadows Allotments contributed to non-attainment of RAC Standard 4 (vegetative/habitat) assessed within the 2003 Rangeland Health Assessments. Based on professional judgment and more recent observations within the Complex, the types of impacts documented to vegetative resources in the 2003 Rangeland Health Assessments are still occurring due to the current over-population of wild horses in excess of established AML.

3.3.6 Wild Horses

The Complex consists of five HMAs that are within portions of four livestock grazing allotments. The Sonoma-Gerlach and Paradise-Denio Resource Area MFP ROD (1982) designated HMAs within the Complex for the long-term management of wild horses. The HMAs for this Complex are nearly identical in size and shape to the original Herd Areas representing where wild horses were located in 1971. There are no congressionally designated Wild Horse Ranges within the Winnemucca District.

AML Establishment

The HMAs in the planning area were designated as suitable for the long-term maintenance of wild horses and burros in the approved Paradise-Denio and Sonoma-Gerlach Management Framework Plans (MFPs) (1982). (HMA terminology did not exist at the time the MFPs were developed. The MFPs referred to HMAs as Herd Use Areas.)

The HMAs in the planning area were designated as suitable for the long-term maintenance of wild horses and burros in the approved Paradise-Denio and Sonoma-Gerlach MFPs (1982). (HMA terminology did not exist at the time the MFPs were developed. The MFPs referred to HMAs as Herd Use Areas.)

The Sonoma Gerlach MFP and Paradise-Denio MFP ROD (1982) established the multiple use balance between livestock, wild horses, and wildlife based on the analysis of alternative allocations between these uses, and set initial forage allocations for wild horses.

In the early 1990s, the appropriate horse numbers for all HMAs in the Complex were further evaluated relative to these initial allocations to ensure a thriving natural ecological balance. AMLs for the five HMAs in the Complex were established in Final Multiple Use Decisions completed in 1993 and 1994, based on Allotment Evaluations that analyzed resource monitoring data and allowed for public involvement and input into the decision-making process. The AMLs for the Warm Springs Canyon HMA, Black Rock Range East HMA, Black Rock West HMA, and a portion of Calico Mountain HMA were re-affirmed through FMUDs issued following completion of Environmental Analyses for the Soldier Meadows and Paiute Meadows Allotments in 2004 and 2003 respectively. A 1993 FMUD and associated allotment evaluation established AML for the Granite Range HMA. An FMUD completed in 2005 for the Pine Forest Allotment established an AML of zero for a small portion of the Black Rock East HMA that fell within that allotment.

NEPA analyses which supported the initial AMLs or re-affirmed AMLs are found in the Sonoma-Gerlach Draft Grazing Environmental Impact Statement (EIS) (1981); Sonoma-Gerlach Final Grazing EIS (1981); Sonoma Gerlach MFP and associated Grazing EIS Record of Decision (ROD) (1982); Paradise-Denio Draft Grazing EIS (1981); Paradise-Denio Final

Grazing EIS (1981); Paradise-Denio MFP and associated Grazing EIS ROD (1982); Environmental Assessment for Soldier Meadows Allotment (2003); Environmental Assessment for Paiute Meadows Allotment (2003); and Pine Forest Allotment Environmental Assessment (2004). Gather Plan Decisions for the Complex and associated Environmental Assessments also adjusted and re-affirmed AML in the years 2000 and 2004 for all HMAs in the Complex (Table 1)

The AML for the Complex was established as a population range of 586-976 wild horses and burros (Table 1). Establishing AML as a population range allows for the periodic removal of excess animals (to the low range) and subsequent population growth (to the high range) between removals (gathers).

AMLs were established in order to ensure a thriving natural ecological balance and multiple-use relationship within the Complex. BLM manages wild horses and burros at the established AMLs and removes animals in excess of the established AML range. Refer to section 3.3.7 for additional information.

Current Population

The following table displays the AML ranges in numbers of horses and the current population and proposed removal numbers for the HMAs in the Complex under the Proposed Action. The current population of wild horses within the Complex has been inventoried at 3,040 wild horses in a September 2009 direct count aerial inventory.⁵

Table 13: Current Horse and Burro Populations

HMA	Acres	Wild Horses			Burros		
		AML Range	Current. Pop.	Target Remove	AML Range	Est. Pop.	Est. Remove
Black Rock Range East	93,438	56-93	308	252	--	0	0
Black Rock Range West	93,206	56-93	627	571	--	0	0
Calico Mountains	160,831	200-333	795	595	--	0	0
Granite Range	103,804	155-258	422	267	--	0	0
Warm Spring Canyon	91,710	105-175	888	783	14-24	29	0
Total	542,989	572-952	3,040*	2,468	14-24	29	0
* Current 2009 wild horse population number are from the September 2009 direct count population inventory.							

⁵ The inventory data collected in September 2009 confirms the inventory data collected in March 2008 (and including the anticipated population growth following two additional foaling seasons), which showed that the wild horse population in the Complex was significantly in excess of the established AML. Due to funding limitations, the only wild horses gathers in Nevada in FY 2009 (which ended September 30, 2009) were in response to emergency conditions. As a result, the gather for the Complex was scheduled for FY 2010 (which began October 1, 2009).

The current population is significantly in excess of the Complex AML established to ensure a thriving natural ecological balance. At their current numbers, wild horses are at about 5.3 times the low range of the AML (572 animals) or 3 times over the high range AML of 952 animals.

The following table and charts displays the allowed wild horse AUMs (upper AML), compared to those of permitted livestock and the estimated wildlife forage use. As indicated in Table 14, the current population equates to over 36,000 AUMs, which exceeds the combined carrying capacity of 33,296 AUMs for both livestock and wild horses (high range AML) identified in the FMUDs completed in 1993, 1994, 2003 and 2004. Refer to Table 2 in Section 2.1.5. (showing 21,872 livestock AUMs + 11,424 wild horse AUMs = 33,296 total AUMs).

The following table and charts displays the allowed wild horse AUMs (upper AML), compared to those of permitted livestock and the estimated wildlife forage use.

Table 14: Wild horse AML, 2008 Current Use Levels and Livestock and Wildlife Comparison ⁶

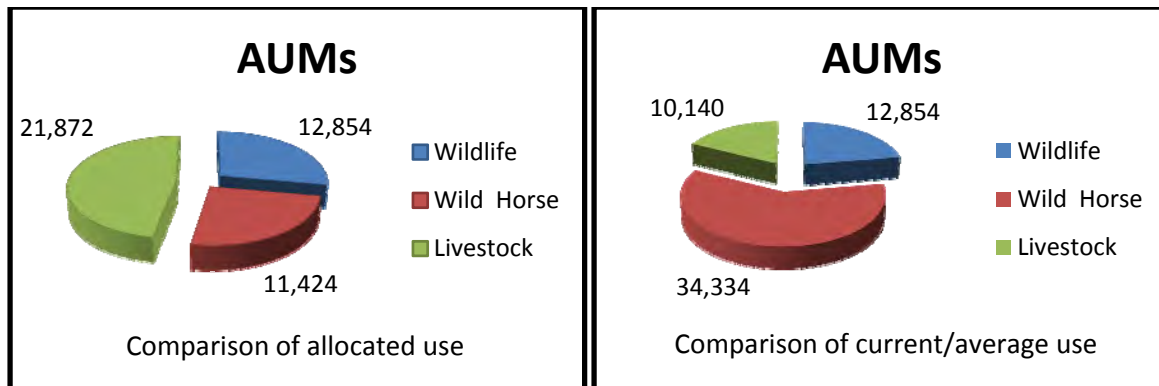
Allotment	Estimated Wildlife Forage Use	Permitted Livestock	Wild Horse Upper Range of AML	Wild Horse 2008 Population
Paiute Meadows	2,325	4,299	1,116	2,580
Buffalo Hills ⁷	8,628 ⁸	4,114	4,800 ⁹	6,984
Soldier Meadows	1,479	12,168	3,996	14,268
Leadville	422	1,291	1,512	2,184
Total	12,854	21,872	11,424	26,016

⁶ Because the September 2009 inventory data has not been broken out by allotment, this comparison was made based on the earlier March 2008 inventory. As the wild horse population has increased since March 2008 by an additional 973 horses, which equates to an additional 10,464 AUMs, this comparison understates the portion of AUMs currently consumed by wild horses.

⁷ Values for the Buffalo Hills Allotment reflect only those portions falling within the Complex.

⁸ Wildlife AUMs are only available for Buffalo Hills and Calico Allotments (an allotment that was combined with the Buffalo Hills Allotment) and therefore could not be broken out solely for the Buffalo Hills Allotment.

⁹ These AUMs reflect the portion of the Calico Mountains HMA falling within the Buffalo Hills Allotment and do not include the Buffalo Hills HMA, as that HMA is not a part of the Complex gather proposal.



The first chart shows the AUMs allocated to wildlife, livestock and wild horses (high AML) through prior planning decisions, in conformance with the land-use plans. The second chart shows the average use in AUMs by livestock between 2006-2008, the allocated wildlife numbers, and the AUMs utilized by wild horses at their March 2008 census numbers.

Population Fluctuation and Movement Patterns

The last gather in the Complex occurred in the winter of 2004-2005 when 2,033 wild horses were gathered, 1,623 removed, and 410 released back to the range. Two hundred and thirty-nine mares of the released horses were treated with a Porcine Zona Pellucida (PZP-22) vaccine (i.e., fertility control agent) and freeze marked for future identification. Following the gather, the BLM estimated that 575 wild horses remained in the Complex.

However, an aerial population survey completed in March 2008 resulted in a direct count of 2,067 adult animals, including nine burros within the Complex.¹⁰ This was 870–1070 more adult animals than anticipated based on the 2005 estimated post gather population and anticipated annual population growth from three new foaling seasons (2005, 2006, and 2007). Due to funding limitations during FY 2009, the excess wild horses identified through the March 2008 inventory of the Complex could not be promptly removed. This has resulted in the addition of at least another 973 wild horses following two new foaling seasons in 2008 and 2009. If BLM had achieved low end AML in the 2004/2005 gather, then this data would indicate an average annual growth rate of over 50%, whereas analysis of population inventory and gather data indicates a historic growth rate of between 20-27% for the Complex.

The discrepancy between the expected 2008 wild horse population and the actual wild horse count in March 2008 may be due to several factors. First, inventory data used to estimate excess wild horse population prior to the 2004-2005 gather was potentially incomplete due to poor weather conditions during the population inventory, which could have contributed to horses being missed and a population estimate that was lower than actual. Second, it is likely that more horses than anticipated were actually left in the Complex post-gather in 2005 due to the under-counting of horses prior to the gather. Third, movement has been documented between the Complex and HMAs administered by the BLM Surprise Field Office, CA and the Sheldon

¹⁰ The March 2008 population inventory included both the Calico Complex HMAs and HMAs managed by BLM's Surprise Field Office in California. The horses counted in the Complex were separate and distinct from those simultaneously counted within the adjoining Surprise Field Office managed HMAs.

Wildlife Refuge. Data compiled by the Surprise Field Office during the March 2008 inventory of those HMAs also revealed higher populations than anticipated in the adjoining HMAs. Overall, the population levels of the Surprise Field Office HMAs exceeded natural recruitment by more than 400 wild horses (representing approximately 80% more wild horses than anticipated).

Thus, significantly higher wild horse populations than anticipated were simultaneously documented both within the Complex and within the HMAs adjoining the Complex. The following table displays the inventory data compiled for the March 2008 flight completed by the Surprise Field Office.

Table 15: Surprise Field Office Inventory, March 2008

HMA	AML range	2/08 pop est.	3/08 inventory	Difference between 2/8 est. and inventory	2009 Population Estimate
Bitner	15-25	22	27	+5	32
Fox Hog	120-220	163	364	+201	518
High Rock	78-120	149	356	+207	395
Massacre Lakes	10-20	110	108	-2	130
Nut Mountain	30-55	42	29	-13	35
Wall Canyon	15-25	18	36	+18	52
TOTALS	268-465	504	920	+416	1,162

*Estimate based on post-gather population estimate and expected natural annual recruitment rate in subsequent foaling seasons.

**2009 estimate is based on March 2008 census data and expected population growth following two foaling seasons (2008, 2009).

The following table displays the AML and current population. The Calico Complex 2009 wild horse population is based on an actual count in September 2009, whereas the Surprise Field Office 2009 population represents an estimated 20% increase from the 2008 inventory count.

Table 16: Calico Complex/Suprise Field Office Population and AML

Complex	AML	2009 Population
Calico Complex	572-952	3,040
Suprise Field Office	268-465	1,162
Total	840-1,417	4,202

Suprise Field Office staff surmise that the increased populations documented in those HMAs may be the result of past horse movement from Winnemucca District, and/or past inventory

error. The last two inventories completed for the Complex (and for Surprise Field Office in 2008) are considered to be more reliable than previous population counts, as they were conducted using on-board GPS and used two or more observers to obtain maximum sightability and accuracy.

Because of potential movement between the Complex and the adjacent HMAs administered by the Surprise Field Office in California, the March 2008 aerial inventory was a coordinated effort between the two offices. The Surprise Field Office inventory was completed on six HMAs and the Winnemucca District completed flights for the five HMAs within the Complex. The purpose of the coordinated wild horse inventory was to determine current distribution and population levels on a regional basis, while using the same inventory methods on the same days. The inventory also included non-HMA areas adjacent to HMAs, where it was believed horses could have moved based on topography, water and forage conditions in their search for additional water, forage and space.

The HMAs within the Complex share common boundaries, allowing movement of wild horses between HMAs. Not only is there interaction of horses within the Complex, but there is also likely interaction with horses in adjoining HMAs, such as west onto HMAs administered by the Surprise Field Office, or north onto the Sheldon National Wildlife Refuge, and non-HMA lands to the east and south. For the most part, few fences exist within the Complex and consist mainly of allotment boundary fencing, protective exclosures in Soldier Meadows and some private land fences. The entire boundary between the Winnemucca District and Surprise Field Office is fenced, creating impediments to wild horse movement beyond the Complex; however, gates are sometimes left open and sections of fence are in disrepair, thereby resulting in some movement beyond the Complex HMAs.

Analysis of field observations and aerial inventory have suggested that wild horses move west onto the lands managed by the Surprise Field Office more often during winter months and move back onto the Complex during summer months. Memos received from the Surprise Field Office in 1999 stated that while gathering horses in Fox Hog HMA, the Surprise office gathered 12 horses with a 2X brand which were originally from the Calico Complex. These were taken back to the Complex. Additionally, Winnemucca District staffs have made field observations noting selected marker horses and freeze-marked wild horses from Surprise Field Office in the Complex and vice versa. These observations further support that some horse movement between the two areas can occur throughout the year; however the actual degree of movement is unknown.

The increase in population of wild horses within the Complex, compounded by drought conditions, has resulted in concentrated use by wild horses of limited water sources and depletion of the vegetation near those water resources. As evident by heavy trailing observed during the aerial population inventory in September 2009, wild horses are currently moving further out from these limited waters to foraging areas, resulting in an increase in heavily used areas. Despite the fact that fertility control was administered to all released mares in 2005, the population has grown and fluctuated at higher than anticipated rates, and it is believed that BLM under-estimated the number of horses remaining in the Complex HMAs post-2005 gather. For this reason, it is not possible to identify or evaluate the effectiveness of the fertility control administration in 2005, except that wild horse numbers remain far in excess of AMLs.

Inventory and Growth Rates

Rates of population increase are compiled to take into account both mortality and foaling and are estimates used to project population growth during years when aerial population inventory is not completed. The rate of increase for the Calico Complex is approximately 20-27% per annum. This figure was derived through analysis of the numbers of foals captured during previous gathers in relation to the number of adults, as well as number of foals observed during aerial population inventory.

While horses can move between the Complex and adjoining HMAs, population inventory data collected in March of 2008 and in September 2009, confirms the number of excess horses that need to be removed from the Complex. The March 2008 population inventory included both the Complex and adjoining HMAs administered by the Surprise Field Office and showed significant numbers of excess wild horses within the Complex HMAs and Surprise Field Office HMAs. While the September 2009 population inventory was limited to the Calico Complex, the actual numbers counted are consistent with the March 2008 population inventory as augmented by the expected additional population growth following two foaling seasons in 2008 and 2009. Thus, BLM has determined that the actual count in the September 2009 population inventory is accurate for the Calico Complex for purposes of identifying the number of excess horses to be removed so as to bring the population back to AML and restore a thriving natural ecological balance.

Genetic Analysis and Herd History

Horses are descendants of ranch horses and cavalry remounts. Based on 2005 capture data, horses exhibit bay (61%), sorrel (18%), brown (8%), or black (8%) coat colors. It is uncommon to find buckskins, palominos, roans, pintos, duns, or excessive white markings. Observed phenotypes are fairly consistent and are of Morgan-type. Genetics analysis was completed following gathers in 2002 and 2005. The analysis suggests the herds are from North America ranch stock ancestry. The analysis reveals close genetic similarity to domestic horse breeds including, Tennessee Walker, American Saddlebred, Morgan, and Standardbred. The genetic analysis was done by E. Gus Cothran from Texas A&M University. The results received from Dr. Cothran indicate mixed genetic variability and diversity from low to above average. Dr. Cothran's recommendations include future monitoring and a potential augmentation of these herds with horses from other HMAs within or outside of the Complex. Samples will again be collected during the proposed gather for genetics analysis. The Winnemucca District plans to work with Dr. Cothran to develop and implement plans to maintain and improve the genetic variability and diversity within the Complex.

Most wild horse herds sampled have high genetic heterozygosity, genetic resources are lost slowly over periods of many generations, and wild horses are long-lived with long generation intervals (Singer, 2000). The AML (including burros) within the Calico Complex is 586-976 which is at a level that supports genetic diversity. The population size, within the AML range in conjunction with the expected degrees of movement within and outside of the Complex, should promote optimum conditions for genetic health even after excess horses are removed.

During the last gather in 2005 sex ratio for animals captured were 54% mares and 46% studs which fall in the normal range. Approximately 60% of the herd was 0-5 years old, 23% were 6-9 years old, and 17% were 10 years and older which is typical of a normal age structure.

Gather History

There have been a total of 12 gathers completed within the Complex since 1979. The following table displays the thirty-year gather history within the Complex.

Table 17: Gather History, Calico Complex

Area	Year	Captured	Removed	Released	Died/Euthanized
Calico Complex ¹	2005	1,473 ²	1,201 ²	268	3/1
Granite Range	2002	346	286	58	2/0
Calico Complex ³	2001	3,191	2,638	540	13 ⁴
Calico Complex ⁵	1997	1,853	1,122	717 ⁶	14 ⁴
Granite Range	1996	695	391	301 ⁶	3 ⁴
Calico Complex ⁵	1994	1,747	834	889 ⁶	24 ⁴
Granite Range	1993	1,069	604	427 ⁶	38 ⁴
Black Rock East	1992	632	489	137 ⁶	6 ⁴
Calico Mountain	1989	343	341	1	1 ⁴
Warm Springs, Black Rock E/W	1988	961	904	37	20 ⁴
Calico Complex ¹	1986	1,454	1,454	0	NA
Warm Springs, Black Rock E/W	1979	1,025	1,025	0	NA
Total		14,789	11,289	3,375	125 (0.85%)
<ol style="list-style-type: none">1. Included Calico Mountain, Warm Springs Canyon and Black Rock E/W HMAs2. Included 49 animals captured from outside the HMA boundaries3. Included Calico Mountain, Warm Springs Canyon, Granite Range and Black Rock E/W4. Not specified Died/Euthanized.5. Included Calico Mountain, Warm Springs Canyon, and Black Rock E/W6. Gathers 1992- 2001 required release of animals 10 years and older.					

Wild Horse Use/Animal and Habitat Health

Numerous studies identify dietary overlap of preferred forage species and habitat preference between horses, cattle, and wildlife species in the Great Basin ecosystems for all seasons (Ganskopp 1983; Ganskopp et al 1986, 1987; McInnis 1984; McInnis et al 1987; Smith 1986a, 1986b; Smith et al 1982; Vavra et al 1978). A strong potential exists for exploitative competition between horses and cattle under conditions of limited forage (water and space) availability (McInnis et al 1987). Wild horses also compete with wildlife species for various habitat components, especially when populations exceed AML and/or habitat resources become limited (i.e., reduced water flows, low forage production, dry conditions, etc.).

Field observations by Winnemucca District staff in the Complex indicate wild horse use has resulted in moderate and heavy utilization in some upland habitats and in many lentic and lotic riparian areas. During the March 2008 inventory, heavy trailing and limited waters were noted within most of the HMAs in the Complex. Water sources were receiving heavy utilization by wild horses. Body condition at that time averaged Henneke Condition Score 4 (moderately thin),

with some horses documented as low a score of 2 (very thin), and up to 5 (moderate).

During the September, 2009 inventory wild horse body conditions were acceptable with body condition scores averaging 4-5 (moderately thin to moderate). Some thin animals were observed that were assumed to be older animals. Older animals were noted in the valleys and toe slopes in the lower elevations, as they were likely unable to travel to better foraging areas in the higher/steeper elevations.

Drought conditions have affected the Complex since 2006. Weather station data for the area indicates that precipitation levels from 2006-2009 have been the lowest on record since the mid-1980's. There are already limited waters within the Complex, and water availability has been further impacted by drought. Drought conditions reduce the flow at spring and developed water sources. With reduction of water availability compounded by an excess population of wild horses, animals are forced to trail farther and farther from water to avoid competition and locate adequate forage. As conditions further deteriorate and water is in short supply, wild horses will hang at waters, waiting for their turn, or waiting for the water catchments to fill back up. They become more and more weak as they become dehydrated, and can no longer trail long distances to forage. Eventually all forage near waters is consumed, and wild horses lose body weight.

Mares and foals are affected the worst, with mares unable to both maintain acceptable body weight and provide milk for foals. Studs may maintain better body weight, but become engaged in fighting as bands travel to remaining water sources to drink. These types of conditions usually require an emergency gather to save the population from death. Conditions within the Complex have not deteriorated to this point, but without a gather to reduce numbers to the low AML, emergency conditions are likely inevitable, as repeatedly shown in other HMAs within Nevada where emergency removals have been necessary.

Rangeland Health Assessments completed for the Soldier Meadows and Paiute Meadows Allotments in 2003 resulted in a determination that excess wild horse and burro numbers were significant contributing factors for not achieving and/or allowing for the progress towards the Standards for Rangeland Health for Standards 1 (soil processes), 2 (riparian) and 4 (habitat). Current excess horse numbers within the Complex are similarly impeding BLM's ability to manage for healthy rangelands.

Within the Warm Springs use area (a Soldier Meadows Allotment use area within the Warm Springs Canyon HMA) concentrated distribution of wild horses and heavy utilization of the vegetation by wild horses —particularly near water sources-- has been documented or observed by Winnemucca District staff. Wild horse use has also resulted in damage to water developments, as horses trample and destroy water developments in their search for water—a situation only exacerbated by continued drought conditions.

The Soldier Meadows Allotment is on a rest rotation system from north to south. Livestock have not used the Warm Springs Canyon HMA portion of this allotment since 2006, due in large part to the over-population of wild horses and wild horse damage to water developments. As there has been no livestock grazing for the past three years, degradation of the vegetation resources in this area is primarily due to wild horses.

The current population of wild horses is affecting soils through utilization and trailing, particularly around water sources. Upland vegetation resources are also being subjected to moderate to heavy utilization and trampling due to concentrated use by wild horses. Hoof action, removal of vegetation, trampling and compaction, resulting from wild horse use, is also causing degradation of water quality, wetlands, riparian areas and meadows.

Due to drought conditions, limited ecological site potential in winter habitat and an overpopulation of wild horses, current water sources and winter habitat forage are inadequate to support the current population of horses within the Complex. Wild horses are not a self-regulating species, have few predators within the Complex, and if excess horses are not removed, will continue to reproduce until their habitat can no longer support them. Usually the habitat is severely damaged before the wild horse population is abruptly impacted and experiences substantial death loss.

3.3.7 Wilderness Study Areas

The designation of the Lahontan Cutthroat Trout Natural Area resulted in the area receiving Instant Study Area (ISA) status, which affords the same management as a Wilderness Study Area (WSA). Section 603 (c) of FLPMA directs how the BLM is to manage “lands under wilderness review,” which includes WSAs. These lands are to be managed in a manner so as not to impair the suitability of such areas for preservation as wilderness. Consequently, actions proposed within WSAs are to be evaluated on the basis of their possible direct and indirect impacts on the untrammelled character of the area and wilderness values of naturalness, solitude and primitive or unconfined recreation, and special features. Bureau policy (H-8550-1.III.E) directs that wild horse and burro populations must be managed at appropriate management levels within wilderness study areas. All temporary trap sites and/or holding corrals fall outside these WSA boundaries. Any additional trap sites would be located outside WSA boundaries or on identified roads (ways) within WSAs.

3.3.8 Wildlife

Terrestrial wildlife resources in the Complex are typical of the Northern Great Basin. A wide variety of wildlife species common to the Great Basin ecosystem can be found here. The vegetation could be categorized into the two broad vegetative types – juniper and sagebrush/salt desert scrub. Common wildlife species include coyote, black-tail jackrabbit, desert cottontail, bobcat, and numerous raptors, reptiles, and other small mammal species. Mule deer and pronghorn antelope are common big game species in the area.

Bighorn Sheep

Bighorn Sheep are an uncommon resident in the mountainous portions of the Complex. Nevada Department of Wildlife (NDOW) estimates that about 343,000 acres of occupied bighorn habitat occurs in the Complex. Topography is the primary source of cover for bighorns. Steep broken escarpments (60% plus slope) or rock outcrops at least five acres in size with accessible terraces is optimum. Bighorn sheep are adaptable foragers but three characteristics are common to quality forage: abundance, continuous distribution, and low stature. Grasses have high importance in bighorn sheep diets, but forbs and shrubs are also important. Desirable bighorn

habitat consists of sagebrush/bunchgrass communities, wet meadows, and riparian areas adjacent to rock outcrops and rimrock.

Winnemucca District staff has observed wild horses within the Complex grazing within potential bighorn habitats. NDOW biologists have observed wild horses chasing bighorn ewes and lambs away from low yield springs in the Complex.

Mule Deer

The Complex contains approximately 505,000 acres of mule deer habitat. Deer are generally classified as browsers, with shrubs and forbs making up the bulk of their annual diet. The diet of mule deer is quite varied; however, the importance of various classes of forage plants varies by season. In winter, especially when grasses and forbs are covered with snow, their entire diet may consist of shrubby species.

Wild horses have little dietary overlap with mule deer. Wild horses almost exclusively graze while mule deer mostly browse. Competition between wild horses and mule deer exists at water sources.

Pronghorn Antelope

The Complex contains approximately 543,000 acres of pronghorn antelope habitat. About one-quarter of this area is considered as crucial winter range, where antelope concentrate on winters with heavy snow accumulations. Pronghorn use open country with few trees and short shrubs. Wet meadows associated with spring meadows provide succulent green forage during hot dry summer months. These are the habitats that wild horses also prefer. Antelope diets consist of forbs and grasses during the spring and early summer and shrub browse the remainder of the year.

Heavy wild horse utilization of spring meadows removes succulent forage antelope depend on during the hot summer months as well as causing degradation of these important habitats.

4.0 ENVIRONMENTAL CONSEQUENCES

Direct impacts are those that result from the actual gather and removal of excess wild horses and treatments to decrease the annual growth rate. Indirect impacts are those impacts that occur once the excess animals are removed. Direct impacts and indirect impacts regarding Alternatives 1-2 (Action Alternatives) and Alternative 3 (No Action) are discussed in each resource section (alphabetically) below.

4.1 Cultural Resources

Impacts Common to the Action Alternatives (1-2)

Direct impacts to cultural resources are not anticipated because gather sites and temporary holding facilities would be placed in previously disturbed areas or inventoried for cultural resources prior to construction. If cultural resources are encountered, these locations would not be utilized unless they could be modified to avoid impacts to cultural resources.

Areas in the vicinity of permanent and intermittent water sources (i.e., riparian areas) have the highest potential for cultural resource sites. Since wild horses concentrate in these areas, soils are most likely to be compacted, increasing runoff and subsequently increasing erosion. Indirect impacts to cultural resources would be reduced in riparian zones where concentrations of horses can lead to modification and displacement of artifacts and features as well as erosion of organic middens containing valuable information.

Alternative 3. No Action. Defer Gather and Removal.

There would be no direct impacts under this alternative. However indirect impacts described above may increase as wild horse populations continue to increase and concentrate at riparian areas.

4.2 Migratory Birds

Impacts Common to Action Alternatives (1-2)

The project area contains riparian and sagebrush habitats, therefore potential impacts to neotropical migrants may be expected. The action alternatives would not directly impact migratory bird populations. The gather would occur when migratory species are not within the HMA. Small areas of migratory bird habitat would be impacted by trampling at trap sites and holding facilities. This impact would be minimal (generally less than 0.5 acre/trap site), temporary, and short-term (two weeks or less) in nature. Indirect impacts would be related to wild horse densities and patterns of use. Reduction of current wild horse populations would provide opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. The action alternatives would result in an impact to migratory bird habitat by supporting a more diverse vegetative composition and structure through improvement and maintenance of healthy populations of native perennial plants. These improvements would benefit migratory bird species including loggerhead shrikes, vesper sparrows, burrowing owls and migratory and resident raptor species. According to Paige and Ritter (1999), "Long-term heavy grazing may ultimately reduce prey habitat and degrade the vegetation structure for nesting and roosting. Light to moderate grazing may provide open foraging habitat."

Alternative 3. No Action: Defer Gather & Removal

No direct impacts. Indirect impacts would be the increasing inability of rangelands to support healthy populations of native perennial plants. Indirect impacts to vegetative communities would increase each year that a gather is postponed which would impact migratory bird species and their habitats.

4.3 Native American Religious Concerns

Impacts Common to Action Alternatives (1-2)

No direct impacts to areas of Native American concern would occur because trap sites and holding areas would be placed in previously disturbed areas and/or in areas where there are no known Native American concerns. Indirect impacts to plants in riparian zones used by Native Americans for medicinal and other purposes would be reduced.

Alternative 3. No Action: Defer Gather & Removal

There would be no direct impacts under this alternative. Wild horses would continue to inhabit areas within the Summit Lake Paiute Reservation. Impacts by wild horses to fences, and sensitive LCT habitat within the Reservation would continue and could increase.

4.4 Threatened & Endangered Species

Impacts Common to Action Alternatives (1-2)

Direct impacts to LCT would be minimal, due to the short term duration of the wild horse gather and the minimal occupied and recovery habitat that could be crossed by the gathering. Impacts could be upon the stream banks of occupied or recovery streams as the wild horses cross streams when they are herded by helicopter to the temporary gather sites. Direct impacts would be lessened by the gather taking place during the winter. Indirect impacts would be beneficial with the reduction of the wild horse herd size, which would reduce the long-term impacts of stream bank trampling to the occupied and recovery LCT habitat. Completion of the gather and achievement of the established AML would provide the best opportunity for conservation, protection and preservation of identified species and their habitats. (USFWS, 1995)

Alternative 3. No Action: Defer Gather & Removal

For the No Action Alternative, there would be no direct impacts upon LCT. Indirect impacts from the No Action Alternative would be related to the wild horse population size. The wild horse population would continue to grow beyond the current 2,432-2,468 excess horses. This larger population would negatively impact LCT in occupied and recovery streams with stream bank trampling, increased sedimentation, reduced vegetation cover, and overall reduced riparian/stream habitat condition.

4.5 Water Quality (Surface and Ground)

Impacts Common to Action Alternatives (1-2)

Direct impacts to water quality occur when wild horses cross streams or springs as they are herded to temporary gather sites. This impact would be temporary and relatively short-term in nature. Indirect impacts would be related to wild horse population size. Reduction of wild horse populations from current levels would decrease competition for available water which should lead to a reduction in hoof action (sediment), nutrients, and bacteria in surface waters. Achievement of the AML would also result in increased residual vegetation (increased stubble heights) that would decrease surface disturbance, increase vegetation cover leading to improved water temperatures and water availability.

Alternative 3. No Action: Defer Gather & Removal

There would be no direct impacts. Indirect impacts would be increasing degradation to water quality as wild horse populations increase each year that a gather is postponed. Water quality would remain in a degraded state on heavily grazed spring sources and brooks due to removal of standing crop, compaction, and deposition of manure leading to increased disturbance and levels of bare ground. Significant progress would not be made towards achieving RAC Standard 2 (riparian) within the Soldier Meadows and Paiute Meadows Allotments, as management of the wild horse population at AML is necessary to meet this standard. The increasing population of wild horses would exacerbate use on existing limited waters and compound impacts described here.

4.6 Wetlands and Riparian Zones

Impacts Common to Action Alternatives (1-2)

Direct impacts to wetlands or riparian zones occur when wild horses cross wetland or riparian zones as they are herded to temporary gather sites. This impact would be temporary and relatively short-term in nature. Indirect impacts would be related to wild horse population size. Reduction of wild horse populations from current levels would decrease hoof action around unimproved springs, improve stream bank stability, and improve riparian habitat condition due to decreased utilization of riparian plants. Decreased utilization would lead to increased residual stubble height; less soil compaction; decreases in bare ground, surface disturbance, and soil erosion; and support improved wetland and riparian conditions on spring meadow systems.

Alternative 3. No Action: Defer Gather & Removal

There would be no direct impacts. In the absence of a wild horse gather, indirect impacts would be increasing degradation to riparian habitats as the wild horse population continues to grow each year that a gather is postponed. Conditions of wetland and riparian areas would remain below potential on heavily grazed spring sources and brooks due to removal of residual stubble height and compaction, leading to increased disturbance and levels of bare ground. Based on spring inventory assessments increasing wild horse populations would accelerate degradation of riparian conditions, thereby reducing the value of these sites for other uses.

4.7 Wilderness

Impacts Common to Action Alternatives (1-2)

In the short-term, the sight and noise of helicopters would be noticeable throughout the wilderness during the gather and would reduce opportunities for solitude. However, conducting the gather during the winter months when visitation is least would minimize these effects. Over the long-term, the gather would indirectly decrease trampling, trailing, hedging, and forage utilization of native grasses thereby maintaining vegetative cover and natural conditions.

As identified in Chapter 2 under Management Actions Common to Alternatives 1-2, no motorized vehicles would be used in Wilderness in association with the gather operation unless such use is consistent with the minimum requirements for management of Wilderness and is preapproved by the authorized officer. A Minimum Requirement/Tool analysis was conducted for the proposed action. The worksheet can be found in Appendix E of this document.

Alternative 3. No Action: Defer Gather & Removal

The deferred gather under the No Action Alternative would result in the impacts described under the sections above. These impacts represent continued and increasing degradation of natural conditions and are inconsistent with current policy for the management of wild horse and burro populations within wilderness areas. Because this alternative would defer the gather until a later date, the long-term impacts to the areas untrammelled character would continue to occur.

4.8 Fisheries

Impacts Common to Action Alternatives (1-2)

Direct impacts on fisheries would be minimal, due to the short term duration of the wild horse gather and the minimal fisheries habitat that would be crossed by the gathering. Impacts could be upon the stream banks of some streams as the wild horses cross streams when they are herded by helicopter to the temporary gather sites. Direct impacts would be lessened by the gather taking place during the winter, during low flow on streams. Indirect impacts would be beneficial with the reduction of the wild horse herd size, which would reduce the long-term impacts of stream bank trampling to the fisheries habitat.

Alternative 3. No Action: Defer Gather & Removal

With the No Action Alternative, there would be no direct impacts on fisheries. Indirect impacts would be related to the wild horse population size. The wild horse population already exceeds the carrying capacity identified for wild horses and livestock combined and could continue to increase to nearly 5,000 wild horses within two years. This larger population would negatively impact fisheries through stream bank trampling, increased sedimentation, reduced vegetation (herbaceous and woody) cover, and overall reduced riparian/stream habitat condition.

4.9 Range Management

Impacts Common to Action Alternatives (1-2)

There could be a short term direct impact to livestock due to gather activities by disturbing and disbursing livestock. Direct impacts of the gather activities itself would be minor and short-term. Only two of the four grazing allotments could potentially have livestock present during the gather (refer to Table 8).

The livestock are currently experiencing direct competition by wild horses for the available forage and water, especially outside the HMAs in the allotments. The direct and indirect impacts would be an increase in the forage availability and quality, reduced competition for water and forage, and improved vegetative resources that would lead to a thriving ecological condition.

Alternative 3. No Action: Defer Gather & Removal

Utilization by authorized livestock use has been directly impacted due to the overpopulation of wild horses, both inside and outside the HMAs. In these areas of overpopulation by wild horses, competition for feed and water is increased and livestock permittee's have been forced to shift use within the allotment, within their permitted dates, or take voluntary non-use due to the diminished health of the allotment. The current population of wild horses is nearly double the existing permitted livestock AUMs, and exceeds the identified carrying capacity for wild horses and livestock combined. Some heavy to severe use is also occurring on intermingled private lands where livestock and wild horse overlap is occurring. The indirect impacts would be continued resource deterioration resulting from competition between wild horses and livestock for water and forage, reduced quantity and quality of forage, and undue hardship on the livestock operators, due to the inability to graze livestock on public lands as a result of the consumption by excess wild horses of forage allocated to livestock under prior multiple use.

4.10 Soils

Impacts Common to Action Alternatives (1-2)

Direct impacts associated with the action alternatives would consist of disturbance to soil surfaces immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating horses, and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature. Impacts would be minimal as herding would have a short-term duration.

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, they are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the long-term effects of these impacts.

Implementation of the action alternatives would reduce the current wild horse population. Reduced concentrations of wild horses would contribute to reducing soil erosion. This reduction would be most notable and important in the vicinity of small spring meadows currently with high levels of disturbance and bare ground.

Alternative 3. No Action: Defer Gather & Removal

No direct impacts are expected under this alternative. In the absence of a wild horse gather, soil loss from wind and water erosion, and invasion of undesired plant species would occur as a result of over-utilization of vegetation, loss of perennial native grasses and heavy trailing. This loss would be most notable in the vicinity of small spring meadows and other water sources with high levels of wild horse use.

4.11 Special Status Species

Impacts Common to Action Alternatives (1-2)

In addition to the impacts to raptors, burrowing owls and vesper sparrow discussed in 4.2, the achievement of AML would have indirect impacts to bats that depend upon flying insects primarily associated with riparian zones. Flying insect populations would be expected to increase as riparian meadows become more productive and stubble heights increase, creating favorable micro sites for insects. Increased insect production would be expected to provide increased foraging opportunities for resident and migratory bats.

The capture actions would generally occur at lower elevations outside sage-grouse habitats. Temporary disturbance associated with helicopter over flights would have no measureable impacts on sage-grouse. Therefore, no direct impacts are anticipated. Achievement of AML within the Complex would indirectly affect sage-grouse and their habitat through improvements in habitat conditions. Increased herbaceous cover would occur due to decreased harvest of forage by wild horses. Herbaceous cover is needed for screening of sage-grouse nests and to provide sage-grouse with forage plants on breeding and summer habitats. Additionally, increased herbaceous cover on spring meadows would improve summer brooding habitats by increasing the availability of high quality herbaceous vegetation and increasing the availability of insects associated with meadows.

No direct impacts to pygmy rabbits are expected. Potential indirect impacts to pygmy rabbits would include increased herbaceous cover under existing stands of big sagebrush used as pygmy rabbit habitats. Decreased wild horse numbers would decrease physical damage to tall sagebrush plants that screen rabbit burrows and decrease hoof damage to burrows.

Alternative 3. No Action: Defer Gather & Removal

No direct impacts are expected under this alternative. Maintaining existing wild horse numbers with associated yearly population growth would continue to impact sensitive species populations and habitats. Wild horse populations would increase (about 20%) each year that the gather is postponed. Upland habitats would continue to see locally heavy levels of utilization associated with wild horse use which would expand as horse populations continue to grow. The associated decrease in herbaceous vegetation would reduce sage-grouse nesting quality. Pygmy rabbit habitat would continue to be damaged by the physical action of horse movement through these habitats and removal of herbaceous vegetation used by rabbits for burrow screening and forage.

Continued heavy grazing would occur on spring meadow systems. Sage-grouse brooding habitats would continue to be degraded. Insect production, important for bats and sage-grouse, would continue to be substantially less than potential.

4.12 Vegetation

Impacts Common to Action Alternatives (1-2)

Direct impacts associated with the action alternatives would consist of disturbance to vegetation immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating horses, and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature. These impacts would include trampling of vegetation. Impacts would be minimal as herding would have a short-term duration.

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, they are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the long-term effects of these impacts.

Implementation of the action alternatives would reduce the current wild horse population to the established AML and provide the opportunity for the vegetative communities to progress toward achieving a thriving natural ecological balance. Removal of wild horses would result in decreased harvest of vegetation. The current carrying capacity identified for wild horses and livestock combined is 34,334 AUMs as determined through FMUDs.¹¹ The current population of wild horses however, is over 36,000 AUMs, which means that wild horses are consuming more forage than should be allowed for wild horses and livestock combined. For example, 2,500 excess wild horses on the range for 12 months consume approximately 12,000 tons of grass and other herbaceous vegetation in excess of what has been allocated for a thriving natural ecological

¹¹ This carrying capacity is for HMA and non-HMA areas within the four grazing allotments in which the Complex HMAs are located.

balance. In conjunction with drought conditions, forage and habitat is reduced for wildlife under these conditions. At the established AML, vegetation harvest by wild horses within the Complex would be reduced to an estimated consumption of 3,000 tons of forage per year.

At the established AMLs, utilization by wild horses would be reduced, which would result in improved forage availability, improved vegetation density, increased vegetation cover, increased plant vigor, and improved seed production, seedling establishment, and forage production over current conditions. Higher quality forage species (grasses) would be available. Competition for forage among wild horses, wildlife, and livestock would be reduced as utilization levels decrease and rangeland health improves; thereby promoting healthier habitat and healthier animals. Allotment specific utilization objectives would not be exceeded. Reduced concentrations of wild horses would contribute to the recovery of the vegetative resource. Physical damage to shrubs and herbaceous vegetation associated with the physical passage of horses would be decreased.

Alternative 3. No Action: Defer Gather & Removal

There would be no direct impacts expected under this alternative. The current population of wild horses equates to over 36,000 AUMs, which exceeds the identified carrying capacity for livestock and wild horses combined. Without a gather to control the population, these figures could increase to nearly 60,000 AUMs within two years, which would be nearly double the carrying capacity established for livestock and wild horses combined.

As a result of the increasing wild horse over-population within the Complex, wild horses would continue to trail farther out from limited waters to foraging areas, subsequently broadening the areas receiving heavy grazing. Indirect impacts include increased competition for forage among multiple-uses as wild horse populations continue to increase. Forage utilization would continue to exceed the capacity of the range resulting in a loss of desired forage species from plant communities as plant health and watershed conditions deteriorate. Abundance and long-term production potential of desired plant communities may be compromised potentially precluding the return of these vegetation communities to their full potential as identified in ecological site descriptions published by the Natural Resource Conservation Service.

Indirect impacts as described in section 4.6 (Wetlands and Riparian Zones) would be increasing degradation to riparian vegetation as the wild horse population increases each year that a gather is postponed.

4.13 Wild Horses

Effects Common to Action Alternatives

Impacts to wild horses under Alternatives 1 and 2 would be both direct and indirect, occurring on both individuals and populations as a whole.

The BLM has been actively conducting wild horse gathers since the mid 1970's within the Winnemucca District. Through this time, methods and procedures have been identified and refined throughout the western states to minimize stress and impacts to wild horses during implementation of wild horse gathers. The SOPs outlined in Appendix A would be implemented to ensure a safe and humane gather occurs and would minimize potential stress and injury to wild horses.

Since 2004, BLM Nevada has gathered just over 26,000 excess animals. Of these, mortality has averaged only 0.5% which is very low when handling wild animals. Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. This data affirms that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective and practical means for the gather and removal of excess wild horses and burros from the public lands. BLM also avoids gathering wild horses prior to or during the peak foaling season and does not conduct helicopter removals of wild horses during March 1 through June 30.

Over the past 30 years, various impacts to wild horses from wild horse gathers have been observed. Individual, direct impacts to wild horses include handling stress associated with the roundup, capture, sorting, animal handling, and transportation of the animals. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. The horse is a very adaptable animal and would assimilate into the environment with new members quite easily. Observations made through completion of gathers shows that captured wild horses acclimate quickly to the holding corral situation, becoming accustomed to water tanks and hay, as well as human presence.

Injuries sustained by wild horses during gathers include nicks and scrapes to legs, face, or body from brush or tree limbs while being herded to the trap corrals by the helicopter. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are not fatal and are treated with medical spray at the holding corrals until a veterinarian can examine the animal.

Most injuries are sustained once the horse has been captured and is either within the trap corrals or holding corrals, or during transport between the facilities and during sorting. These injuries result from kicks and bites, and from animals making contact with corral panels or gates. Transport and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting and move the horses into the large holding pens to settle in with hay and water. Injuries received during transport and sorting consist of superficial wounds of the rump, face, or legs. Despite precautions, occasionally a wild horse will rear up or make contact with panels hard enough to sustain a fatal neck break, though such incidents are rare. There is no way to reasonably predict any of these types of injuries. On many gathers, no wild horses are injured or die. On some gathers, due to the genetic background of the horses they are not as calm and injuries are more frequent. Overall, however, injuries and death are not frequent and usually average less than 0.5%.

Though some members of the public have expressed the view that helicopter gathers are not humane, most injuries occur once the horses are captured, and similar injuries would also be sustained if horses were captured through bait trapping, as the animals would still need to be sorted, aged, transported and otherwise handled. During the actual herding of horses with a helicopter, injuries are rare, and consist of scrapes and scratches from brush, or occasionally broken legs from horses stepping into a rodent hole. Serious injuries requiring euthanasia could occur in 1-2 horses per every 1000 captured based on prior gather statistics

Indirect individual impacts are those impacts which occur to individual horses after the initial stress event, and may include spontaneous abortions in mares, and increased social displacement and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs with older studs following sorting and release into the stud pen which lasts less than two minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises, which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual. Spontaneous abortion events among mares following capture is rare.

A few foals may be orphaned during gathers. This may occur due to:

- The mare rejects the foal. This occurs most often with young mothers or very young foals,
- The foal and mother become separated during sorting, and cannot be matched,
- The mare dies or must be humanely euthanized during the gather,
- The foal is ill, weak, or needs immediate special care that requires removal from the mother,
- The mother does not produce enough milk to support the foal.

Oftentimes, foals are gathered that were already orphans on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Orphans encountered during gathers are cared for promptly and rarely die or have to be euthanized.

Nearly all foals that would be gathered during the winter season would be about seven months of age and would be ready for weaning from their mothers. In private industry, domestic horses are normally weaned between four and six months of age.

Summer gathers pose increased risk of heat stress; however, this can occur during any gather, especially in older or weaker animals. Adherence to the SOPs as well as the techniques utilized by the gather contractor minimizes heat stress if summer gathers are necessary. Electrolytes are routinely administered to the drinking water during gathers that involve animals in weakened conditions or during summer gathers. Additionally, BLM staff maintains supplies of electrolyte paste if needed to directly administer to an affected animal. Heat stress does not occur often, but if it does, death can result.

Winter is often the preferred time to gather horses, particularly for the Calico Complex due to the terrain and elevations which make it difficult to gather wild horses from the higher elevations during summer months. The terrain is also rocky, and past experience by the Winnemucca District indicates that fewer injuries to hooves and legs occur during winter gathers in this area. Winter gathers typically result in less stress to wild horses as the cold and snow does not affect horses during the gather to the degree that heat and dust would during summer gathers. Wild horses are able to travel farther and over terrain that is more difficult during winter gathers if snow does not cover the ground. Water intake requirements are less during winter months, making this timeframe less apt to cause distress from heat exhaustion. During summer months,

horses may be travelling long distances between water and desired forage areas, and may therefore be more easily dehydrated during gathers.

Oftentimes, wild horses are located at the highest elevations during the summer months, and must travel over steep terrain to the trap sites. Dense tree cover further increases the difficulty of gathering wild horses during summer months. Wild horses are often located in lower elevations, in less steep terrain during winter gathers due to snow cover in the higher elevations. Subsequently, the horses are closer to the potential trap sites, and need to maneuver less difficult terrain in many cases. Snow cover can increase fatigue and stress during winter gathers. The helicopter pilot allows horses to travel slowly at their own pace. The Contractor may plow trails in the snow leading to the trap sites to make it easier for horses to travel to the trap site.

During summer months, foals are typically small, and average 4 months old. Newborn foals are often gathered, and many foals are too young to wean. By fall and winter, most foals are of good body size and sufficient age, and can easily be weaned. Fall and winter time-frames are much less stressful to foals than summer gathers. Not only are young foals in summer months more prone to dehydration and complications from heat stress, the handling, sorting and transport is a stress to the young animals and increases the chance for them to be rejected by their mothers. By gathering wild horses during the winter, stress associated with summer gathers can be avoided.

Through the capture and sorting process, wild horses are examined for health, injury and other defect. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy IM-2009-041 is used as a guide to determine if animals meet the criteria and should be euthanized (refer to SOPs Appendix A). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses that have congenital (genetic) or serious physical defects such as club foot, or sway back and would not be successfully adopted, or should not be returned to the range.

The wild horses that are not captured may be temporarily disturbed and move into another area during the gather operations. With the exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

As a result of lower density of wild horses across the HMAs, competition for resources would be reduced, allowing wild horses to utilize preferred, quality habitat. Confrontations between stallions would also become less frequent, as would fighting among bands at water sources. Achieving the AMLs and improving the overall health and fitness of wild horses could also increase foaling rates and foaling survival rates over the current conditions.

The primary effects to the wild horse population that would be directly related to this proposed gather would be to herd population dynamics, age structure or sex ratio, and subsequently to the growth rates and population size over time.

It is not expected that genetic health would be impacted by Alternatives 1 or 2. The AML range of 586-976 in addition to substantial movement within and outside of the Complex will provide the best opportunity for genetic health. Following analysis of samples collected in 2009-2010, the Winnemucca District will work with Dr. Gus Cothran to develop plans to maintain and further improve genetic health.

The primary benefit of achieving and maintaining the established AMLs within the HMAs would be to the health and sustainability of habitat attributes. Forage and water resources would be allowed to improve in quality and quantity. Improved range condition and increased forage availability would promote healthy viable, self-sustaining populations of wild horses. A thriving natural ecological balance between wild horses and other resource values would be met throughout the Complex, and future deterioration of the range from an over-population of wild horses would be avoided. Managing wild horse populations in balance with the habitat and other multiple uses would ensure that the populations are less affected by drought or other climate fluctuations, and that emergency gathers are either avoided or minimized, thus reducing stress to the animals, and increasing the long-term success of these herds.

Impacts that differ between Action Alternatives (1-2)

The objective of the Proposed Action is to gather up to 2,736 horses of which 2,432-2,468 would be removed in order to return wild horse population size to within the AML (i.e. 572-952 wild horses). Up to 268 (77 treated mares and 191 studs) would be released back into the Complex. Eighty-one percent of the existing population must be gathered in order to remove the 2,468 excess wild horses necessary to achieve the low AML.

The proposal also includes fertility control treatment and/or adjustment of the sex ratio to favor males through the selection of release horses, so as to decrease the future annual population growth. In order to apply fertility control to mares, and to treat a large enough portion of the horses captured and subsequently released, the gather operation would need to result in the capture of at least 81-90% of the current wild horse population in the Complex.

If the gather efficiency exceeds 81% (2,468 head) then all mares selected for release, including those previously treated with fertility control, would be treated/re-treated with a two-year Porcine Zona Pellucida (PZP-22) or similar vaccine and released back to the range. Immuno-contraceptive treatments would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix B). Mares would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

Studs selected for release would be released to increase the post-gather sex ratio to approximately 60% studs in the remaining herds. Studs would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).

Due to the mountainous terrain, vegetative cover, and potential winter storm conditions, gathers efficiency may be less than optimal. Population gather projections show that at 80% gather efficiency (i.e., 80% of the current population of 3,040 or 2,432 horses gathered) an insufficient number of wild horses would be gathered to implement fertility control or allow release of horses back onto the range or to achieve the low range AML.

Should an adequate portion of the population not be captured, fertility control treatments would not be implemented, and the Proposed Action would consist of either removal only to achieve the low AML, or the release of only studs to achieve the low range of AML.

The procedures to be followed for the implementation of fertility control are detailed in Appendix B. Each released mare would receive a single-dose of the two-year PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare's immune system to produce antibodies and these antibodies bind to the mare's own eggs, and effectively block sperm binding and fertilization (Zoo Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible.

The highest success obtained for fertility control has been achieved when applied during the timeframe of November through March. Refer to Appendix B for more information about fertility control research procedures. The efficacy for the application of the two-year PZP vaccine based on winter application is as follows:

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Normal	94%	82%	68%

This one-time application, applied at the capture site, would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). The vaccine has also proven to have no apparent effects on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Mares would foal normally in 2010 (year 1).

The injection would be controlled, handled, and administered by a trained BLM employee. Mares receiving the inoculation would experience slightly increased stress levels from increased handling while being inoculated and freeze branded. Injection site injury associated with fertility control treatments is extremely rare in treated mares, and may be related to experience of the administrator. Any direct impacts associated with fertility control would be minor in nature and of short duration. The mares would quickly recover once released back to the HMA.

Refer to Appendix B for detailed information about fertility control treatment and results of the WinEquus horse population modeling.

Alternative 1 would involve the release of some captured wild horses back into the Complex to achieve a post-gather population of 60% studs and 40% mares. Under this alternative band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Conversely, a selection criterion, which leaves more mares than studs, would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, lengthening of the time after birth when individual mares begin actively reproducing, and larger band sizes.

Modification of sex ratios for a post-gather population favoring studs would further reduce growth rates in combination with fertility control.

Alternative 2 would not involve fertility control, and would result in a post-gather sex ratio of approximately 50:50. Mares would not undergo the additional stress of receiving fertility control injections or freeze branding. Mares would foal at normal rates until the next gather is scheduled.

The primary differences among the Action Alternatives would be to growth rates and subsequent population sizes into the future until another gather becomes necessary to remove excess wild horses. Under the Proposed Action, average population sizes will be slightly lower over time than Alternative 2, according to the population modeling (Appendix C). Gathers to remove excess wild horses would still be required within 3-4 years under both Action Alternatives; however the population modeling shows that the average number of animals needing to be removed over the modeling period is about ten percent less under Proposed Action than Alternative 2 due to the application of fertility control treatment and modified sex ratios. Median growth rates for the Proposed Action are approximately 70% of those identified for Alternative 1 according to the modeling. Neither the Proposed Action nor Alternative 2 resulted in crashes to the population according to the modeling results. Refer to the discussion below and Appendix C for more detail.

No Action Alternative (No Wild Horse Gather)

Under the No Action alternative, AML would not be achieved within the Complex and wild horses would not be removed from horse free areas outside of the boundaries of designated HMAs including Tribal lands from which removal is mandated by the WFRHBA. There would be no active management to control the size of the population at this time, and wild horse populations would continue to increase at an average rate of 20-27% per year. Without a gather and removal now, the wild horse population in the Complex would exceed 7,000 head within four years based on population annual rate estimates. According to the population modeling results, the average population within the Complex over 10 years would approximate 9,500 wild horses, with a highest average population reflecting up to 11,662 wild horses. As previously discussed in other sections, the current wild horse population of 3,040 wild horses equates to over 36,000 AUMs, which exceeds the identified carrying capacity for both wild horses and livestock combined. Refer to 3.3.2 and 4.9 Range Management and 4.12 Vegetation.

AML is the maximum population at which a thriving natural ecological balance would be maintained and to avoid deterioration of the rangeland. The increasing population of wild horses in excess of AML would over-extend and deplete water and forage resources. Excessive utilization, trampling, and trailing by wild horses would further degrade the vegetation, prevent improvement of range that is already in less than desirable or degraded condition, would degrade currently healthy rangelands, and would not allow for sufficient availability of forage and water for either wild horses or other ungulates, especially during drought years or severe winter conditions. Winter range lacks abundant forage and waters are limited. Wild horses are already congregating in high densities within portions of the Complex, which situation will be further aggravated if excess horses are not removed.

Throughout the HMAs administered by the Winnemucca District few predators exist to control wild horse or burro populations. Some mountain lion predation occurs, but does not appear to be substantial. Coyote are not prone to prey on wild horses unless young, or extremely weak. Other predators such as wolf or bear do not exist.

Wild horses are a long-lived species with documented foal survival rates exceeding 95%. Survivability rates collected through research efforts are as follows:

- Pryor Mountain Wild Horse Range, Montana: >95%; 15 years and younger, except for foals, both sexes: 93%;
- Granite Range HMA, Nevada: >95%; 15 years and younger, except for male foals: 92%;
- Garfield Flat HMA, Nevada: > 95%; 24 years and younger, except both foals, both sexes: 92%.

If the current excess of 2,468 wild horses are not removed this winter, by the next foaling season, BLM estimates that the population would increase from the current 3,040 wild horse population to at least 3,600 wild horses, exacerbating the deterioration in range conditions documented at the current wild horse population within the Complex. There would be uncontrolled increases in the wild horse population, depletion of forage and water resources and degradation of plant communities would result in decline of the body condition, and health of the wild horse population, ultimately resulting in catastrophic losses to the herd. Wild horses are not self-regulating species and would continue to reproduce until their habitat can no longer support them. Usually the habitat is severely damaged before the wild horse population is abruptly impacted and experiences substantial death loss.

Significant loss of the wild horses in the Complex due to starvation or lack of water would have obvious consequences to the long-term viability of the herd. Continued decline of rangeland health and irreparable damage to vegetative, soil and riparian resources, would have obvious impacts to the future of the Complex and all other users of the resources, which depend upon them for survival. As a result, the No Action Alternative would not ensure healthy rangelands that would allow for the management of a healthy, self-sustaining wild horse population, and would not promote a thriving natural ecological balance.

While some members of the public have advocated “letting nature take its course”, allowing horses to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild horses. The damage to rangeland resources that results from excess numbers of wild horses is also contrary to the WFRHBA, which mandates the Bureau to “*protect the range from the deterioration associated with overpopulation*”, “*remove excess animals from the range so as to achieve appropriate management levels*”, and “*to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area*”.

Promulgated Federal Regulations at Title 43 CFR § 4700.0-6 (a) state “*Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat*” (emphasis added). Allowing excess wild horses to remain ungathered would be inconsistent with the mandates of the WFRHBA and implementing regulations.

4.14 Wilderness Study Areas

Impacts Common to Action Alternatives (1-2)

In the short-term, the sight and noise of helicopters would be noticeable throughout the wilderness or wilderness study area during the gather and would reduce opportunities for solitude. However, conducting the gather during the winter months when visitation is least would minimize these effects to the extent possible. Over the long-term, the gather would indirectly decrease trampling, trailing, hedging, and forage utilization of native grasses thereby maintaining vegetative cover and natural conditions. We do not anticipate any of the actions proposed under the Action Alternatives would impair the suitability of the Lahanton Cutthroat Trout Instant Study Area for preservation as wilderness, should Congress decide to designate the area as such in the future.

As identified in Chapter 2 under Management Actions Common to Alternatives 1-2, no motorized vehicles would be used in Wilderness Study Area in association with the gather operation unless such use is consistent with the minimum requirements for management of wilderness study areas and is preapproved by the authorized officer. A Minimum Requirement/Tool analysis was conducted for the proposed action. The worksheet can be found in Appendix E of this document.

Alternative 3. No Action: Defer Gather & Removal

The deferred gather under the No Action Alternative would result in the impacts described under the sections above. These impacts represent continued and increasing degradation of natural conditions and are inconsistent with current policy for the management of wild horse and burro populations within wilderness study areas. Because this alternative would defer the gather until a later date, the long-term impacts to the areas untrammelled character would continue to occur.

4.15 Wildlife

Impacts Common to Action Alternatives (1-2)

In addition to impacts discussed for Migratory Bird and Special Status Species, direct impacts would consist primarily of disturbance and displacement to wildlife by the low-flying helicopter and construction of temporary trap/holding facilities. Typically, the natural survival instinct to this type of disturbance is to flee from the perceived danger. These impacts would be minimal, temporary, and of short duration. There is a slight possibility that non-mobile or site-specific animals would be trampled.

Indirect impacts would be related to wild horse densities. Achievement of established AMLs would decrease competition for available cover, space, forage, and water between wild horses and other wildlife. Decreased wild horse levels would reduce conflicts between horses and wildlife at limited water sources. Reduced harvest of vegetation would result in increased plant vigor, production, seedling establishment, and ecological health of important wildlife habitat. Resident populations of mule deer and pronghorn antelope would benefit from an increase in forage availability, vegetation density and structure.

Completion of the gather and achievement of the established AML would provide the best opportunity for conservation, protection and preservation of identified species and their habitats. Alternatives 1 and 2 would result in reduced competition with wildlife which would increase the quantity and quality of available forage. There would be fewer disturbances associated with wild horses along stream and riparian habitats and adjacent upland habitats.

Alternative 3. No Action: Defer Gather & Removal

No direct impacts are expected under this alternative. Maintaining existing wild horse numbers with associated yearly population growth would continue to impact wildlife populations and habitats. Wild horse populations would increase (about 20%) each year that the gather is postponed. Upland habitats would continue to see locally heavy levels of utilization associated with wild horse use which would expand as horse populations continue to grow. The associated decrease in herbaceous vegetation would reduce wildlife forage availability and quality, decreasing population levels. Wildlife habitat would continue to be impacted by the physical action of horse movement.

Continued heavy grazing or trampling would occur on spring meadow systems. The result would be to decrease water availability, leading to increased competition for this critical resource. Habitats associated with wetland and riparian areas would remain degraded due to removal of residual stubble height and compaction, leading to increased disturbance and levels of bare ground. Based on spring inventory assessments increasing wild horse populations would continue degradation of riparian habitats, thereby reducing the value of these sites for many wildlife species.

5.0 CUMULATIVE IMPACTS

The NEPA regulations define cumulative impacts as impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non federal) or person undertakes such other actions (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Cumulative Assessment Area (CSA) for the purpose of this analysis is the Complex. However, because some degree of wild horse movement is recognized between the Complex and HMAs administered by the Surprise Field Office, the CSA is expanded to include six California administered HMAs for the analysis of cumulative impacts to wild horses. Refer to Map 3.

5.1 Past and Present Actions

Wild Horses

The Sonoma-Gerlach and Paradise-Denio Resource Area MFPs (Winnemucca District) designated the five HMAs within the Complex for the long-term management of wild horses. The HMAs established in 1982 for this Complex are nearly identical in size and shape to the original Herd Areas representing where wild horses were located in 1971. Currently, management of HMAs within the Complex and wild horse population is guided by the July 1982 *Sonoma-Gerlach and Paradise-Denio Resource Area* MFPs and RODs, the July 2004 ROD for the *Black Rock Desert High Rock Canyon Emigrant Trails NCA Resource Management Plan* and

associated FMUDs as identified in Table 1 (Section 1.4). The AML range for the Complex is 572-952 wild horses.

The 1979 Tuledad/Homecamp and 1981 Cowhead/Massacre MFPs (Northern California District) designated three California administered HMAs (Fox-Hog, High Rock, and Wall Canyon), which are contiguous to the Nevada's Calico Complex, for the long-term management of wild horses. The HMAs as established are nearly identical in size and shape to the original Herd Areas representing where wild horses were located in 1971. The High Rock HMA and portions of the Fox Hog and Wall Canyon HMAs are in the Black Rock Desert High Rock Canyon Emigrant Trails NCA. The AML range for the Surprise Field Office managed HMAs is 268-465 wild horses. Refer to Table 15 in Section 3.3.6 above.

Management of California HMAs within the CSA and wild horse population is guided by the 1979 *Tuledad/Homecamp* and 1981 *Cowhead/Massacre MFP/Final Grazing EIS and ROD*, as amended by the Rangeland (Land) Health Standards and Guidelines for California and Northwestern Nevada; the July 2004 ROD for the *Black Rock Desert High Rock Canyon Emigrant Trails NCA Resource Management Plan*; and the 2008 *Surprise Resource Management Plan (RMP)*.

The actions which have influenced the wild horse populations in existence today are primarily wild horse gathers, which resulted in the capture of some 14,789 wild horses, the removal of 11,289 excess horses and release of 3,375 horses back into the Complex. Refer to Table 17 in Section 3.3.6 above

Vegetation, Riparian and Water Resources

Past

Forage utilization during the 1900's was high when thousands of cattle, sheep, and horses grazed lands in northern Nevada. In the 1930s when overgrazing threatened to reduce Western rangelands to a dust bowl, Congress approved the Taylor Grazing Act (TGA) of 1934, which for the first time regulated grazing on public lands. The TGA required ranchers who grazed horses or livestock on public lands to have a permit and to pay a grazing fee, but by that time, thousands of horses roamed the Nevada desert unbranded and unclaimed.

Prior to the TGA livestock grazing practices contributed to significantly impacting the soil resource. The soil tolerance was exceeded and the soil medium for plant growth was not maintained. As a result, livestock grazing activities in the past had significant impacts to the vegetation resources within the impact assessment area by eliminating or greatly reducing the primary understory plants. Cheat grass was introduced into the area in the early 1900s.

Prior to the TGA livestock grazing practices also significantly impacted wetland and riparian zones. Wetland and riparian zones declined, riparian vegetation was insufficient to dissipate energy or to filter sediments, increasing erosion and destabilizing stream banks and meadows. Destabilization of streams and meadows led to incised channels and gullies resulting in lowered water table. In order to support and better distribute livestock, so as to prevent adverse impacts to rangeland health, a variety of range improvement projects have been implemented through the years dating back to the 1930s.

Past livestock grazing decisions have resulted in adjustments of livestock numbers and seasons of use for the livestock grazing allotments to promote rangeland health. The current level of permitted livestock grazing use is only 57% of the level of permitted grazing in 1982. Refer to Table 11, Section 3.3.2 above

Present

While the present livestock grazing system and efforts to manage the wild horse population within AML has reduced past historic soil impacts and has improved current soil resource conditions, the current overpopulation of wild horses is continuing to contribute to areas of heavy vegetative utilization, result in trailing and trampling damage, and is prevent BLM from managing for rangeland health and for a thriving natural ecological balance.

5.2 Reasonable Foreseeable Future Actions

Wild Horses

The current population of wild horses within the adjoining HMAs managed by the Surprise Field Office is in excess of AML and would be scheduled at some time in the next 1-2 years for a gather to bring those HMAs to the low range of AML.

The Winnemucca District plans to assess management for wild horses between the Complex and adjoining HMAs managed by the Surprise Field Office to develop and coordinate management strategies to reduce population growth and account for inherent movement of wild horses through these areas. This would provide increased coordinated management of wild horses over the entire CSA. Plans would be developed following required environmental documents and consultation with the interested public. These plans would define the degree of joint management that should or should not be implemented based on available data. Future wild horse gathers within the combined area – if deemed appropriate- could be conducted about every 3-4 years over the next 10-15 year period in order to manage the entire area within the established AML range. Fertility control and sex ratio adjustments would be proposed as part of these future gathers in an effort to slow population growth.

Additionally, Herd Management Area Plans (HMAPs) could be completed or updated to include some or all of the HMAs and involve management alternatives by Complexes (which could also include those HMAs administered by the Surprise Field Office as appropriate). Any future wild horse or burro management, including gathers within these HMAs would be analyzed in appropriate environmental documents following site specific planning and public involvement.

Vegetation, Riparian and Water Resources

Livestock grazing is expected to continue at similar stocking rates.

Ruby Pipeline Project

The Ruby Pipeline Project proposal is a forty-two inch buried natural gas transmission pipeline proposed to transverse the northern end of the CSA, generally running east to west. The pipeline is being proposed to transport natural gas from Wyoming to a transfer station located in Milan, Oregon. From this transfer station natural gas would be distributed throughout the western United States, primarily California, Oregon, and Nevada. The proposed route would impact the Warm Springs Canyon and Black Rock Range West HMAs within the Complex.

This proposal would impact the vegetative resource in the short and long-term. In the short term, the vegetation would be removed during construction. In the long term vegetation would be permanently removed where maintenance roads and pipeline operation facilities are necessary. Other long-term impacts to the vegetative resource could be expected where habitat takes many years to be rehabilitated. The BLM has provided comments to the Federal Energy Regulatory Commission pertaining to anticipated impacts to wild horses from the proposed Ruby Pipeline project. The BLM would complete mitigation and monitoring as part of any right-of-way granted.

Additional potential wild horse related impacts from the proposed project could include disruption of horses' daily activities, such as foraging and watering, due to the pipeline construction activities, a small reduction in available habitat due to habitat disturbance, disruptions to herd movements along the construction route, wild horse/vehicular accidents and increased people presence. The majority of these potential impacts would be short-lived and temporary in nature and can be mitigated through appropriate coordination with the proponent. It is anticipated that none of these impacts would have any long-term effect on the existing population of wild horses and burros.

Bighorn Sheep Gather

Nevada Department of Wildlife (NDOW) plans to conduct an NDOW capture operation of bighorn sheep from within the Complex. Bighorn sheep would be relocated to areas outside of the Complex during the winter months. Under Alternatives 1 and 2, BLM would coordinate closely with NDOW to ensure there would be no conflict between the two separate gather operations.

5.3 Cumulative Impacts (For all affected resources analyzed in Chapter 4)

Impacts Common to Action Alternatives (1-2)

Cumulative effects expected when incrementally adding either of the action alternatives to the CSA would include continued improvement of upland and riparian vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild horses populations as forage (habitat) quantity and quality is improved over the current level. Benefits from reduced wild horse populations would include fewer animals competing for limited water quantity and at limited sites. Cumulatively there should be more stable wild horse populations, healthier rangelands, healthier wild horses, and fewer multiple use conflicts within the cumulative area over the short and long-term. Gathering and removing excess wild horses from the Complex would also likely benefit resources in the adjoining Surprise Field Office managed HMAs, as horses in the Complex would not need to travel in search of additional forage, water and space due to overpopulation.

Cumulatively over the next 10-15 year period, continuing to manage wild horses within the established AML range would result in improved vegetation condition (i.e. forage availability and quantity), which in turn would result in improved vegetation density, cover, vigor, seed production, seedling establishment and forage production over current conditions. Increased coordinated management of wild horses over the entire CSA would allow a free roaming behavior amongst existing herds and therefore lead to a thriving natural ecological balance. Managing wild horse populations within the established AML would allow the primary forage plant species to return more rapidly and allow for improvements to riparian habitat, even though

some vegetation conditions may never be able to return to their potential. Maintaining AML over a sustained period of time throughout the CSA would allow for the collection of scientific data to evaluate AML levels.

Cumulatively over the next 10-15 years, fewer gathers should result and less frequent disturbance to individual wild horses and the herd's social structure. Individual and herd health would be maintained. Some movement of wild horses across HMA boundaries within the CSA would be expected but should not result in non-attainment of identified AML ranges and other management objectives if excess horses are removed from the Complex and adjoining HMAs.

The ability to gather a higher percentage of the total population in future gathers would allow the increased use of fertility control and sex ratio adjustments in an effort to slow population growth. However, return of wild horses back into the HMA may lead to the decreased ability to gather horses in the future as released horses learn to evade the helicopter.

The amount of vegetation production that would be lost should the natural gas pipeline be implemented within the CSA, is anticipated to be negligible in relation to total vegetative production in the Complex.

Removal of bighorn sheep would remove some of the overlap between wild horses and bighorn sheep in the Complex.

Alternative 3. No Action: Defer Gather & Removal

Under the No Action alternative, the wild horse population in the Complex could exceed 5,000 head in about two years or within a year for the entire CSA area. Increased movement of horses outside the boundaries of the HMAs can be expected as the ever greater numbers of horses search for sufficient resources and habitat for survival, thus impacting larger areas of public lands within the CSA. Heavy utilization of available forage and insufficient water would be expected. Allowing the wild horse population to continue to grow beyond the current population numbers would be likely to result in a population crash during the next decade. Wild horses, wildlife and livestock would not have sufficient forage or water. All animals would experience suffering and possible death. Ecological communities and habitat resources would not be sustainable. Rangeland health would degrade, possibly below biological thresholds, making recovery unlikely if not impossible as cheatgrass, medusa head, and other invasive non-native species could dominate the understory degrading ecological conditions.

Emergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water. These emergency removals could occur as early as this winter season if the area experiences normal or above-normal snow depths. There is also a high likelihood that emergency actions would be needed beyond the winter season if the current drought conditions persist through the upcoming summer. During emergency conditions, competition for available forage and water resources is heightened and generally impacts the older and youngest horses as well as lactating mares first. These groups would experience significant weight loss and diminished health, which could result in prolonged suffering and their eventual death. If emergency actions are not taken (prior to or in response to these events), the overall population could be affected by severely skewed sex ratios towards stallions (generally the strongest and healthiest portion of the population) and a significantly altered age structure. In

addition, habitat resources would be over-utilized and progress toward rangeland health standards would not be met.

Cumulative impacts would result in foregoing an opportunity to improve rangeland health and to properly manage wild horses in balance with the available water and forage. Over-utilization of vegetation and other habitat resources would occur as wild horse populations continued to increase. Wild horse populations would be expected to eventually crash at some ecological threshold; however wild horse, livestock, and wildlife would all experience suffering and possible death as rangeland resources continued to degrade. Attainment of MFP/RMP/FMUD objectives and Standards for Rangeland Health and Wild Horse and Burro Populations would not be achieved.

AML would not be achieved or sustained throughout the CSA and therefore the collection of scientific data necessary to evaluate AML levels, in relationship to rangeland health standards and thriving natural ecological balance being met or achieved, would not be attainable.

Impacts to the human environment across the CSA would be compounded should the current population of horses be allowed to remain and expand. This would include impacts to wild horses from the proposed Ruby Pipeline Project.

Removal of bighorn sheep would remove some of the overlap between wild horses and bighorn sheep in the Complex.

6.0 MONITORING and MITIGATION MEASURES

Monitoring

The BLM Contracting Officer Representative (COR) and Project Inspectors (PIs) assigned to the gather would be responsible for insuring contract personnel abide by contract specifications and SOPs. Ongoing rangeland, riparian, and wild horse monitoring would continue, including periodic aerial population survey counts.

Should the Proposed Action gather efficiency exceed 80% and wild horses are released:

- fertility control monitoring would be conducted in accordance with the SOP's outlined in Appendix B; and,
- monitoring the herd's social behavior would be incorporated into routine monitoring.

The objective of this additional monitoring would be to determine if additional studs form bachelor bands or are more aggressive in competing with breeding bands for forage and water than at present.

7.0 LIST OF PREPARERS

The following list identifies the interdisciplinary team member's areas of responsibility.

Jerome Fox	Project Lead, Wild Horses and Burros, overall document preparation
Shawna Richardson	Wild Horses and Burros and overall document preparation

Alan Shepherd	Wild Horses and Burros
Glenna Eckel	Wild Horses and Burros
Kathy Ataman	Cultural Resources, Native American Religious Concerns
Roger Farschon	General Wildlife, Migratory Birds, Threatened and Endangered Species, other Special Status Species, Surface Water, Wetlands and Riparian Areas
Greg Lynch	Fisheries and Threatened and Endangered Fish Species
Lynn Ricci	National Environmental Policy Act Compliance
Mandy Deforest	Rangeland Management
Ron Pearson	Rangeland Management
Derek Messmer	Invasive, Non-native Species
Mike Zielinski	Soils, Surface Water, Wetlands and Riparian Areas
Sandi Gracia	Wilderness, Wilderness Study Areas
Zwaantje Rorex	GIS

8.0 CONSULTATION AND COORDINATION

Public hearings are held annually on a state-wide basis regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During these meetings, the public is given the opportunity to present new information and to voice any concerns or opinions regarding the use of these methods to capture wild horses (or burros). The Nevada BLM State Office held a meeting on May 20, 2009; several written comments were entered into the record for this hearing. Specific opinions expressed or issues identified included: (1) the use of helicopters and motorized vehicles is inhumane and results in injury or death to significant numbers of wild horses and burros; (2) inventory methods using helicopters and fixed wing aircraft; (3) reported reproduction and mortality rates; (4) providing the public with pertinent information regarding gather plans at site-specific locations; (5) statistics or statements relating to impacts of helicopter driving, distances, terrain, etc. on wild burro herds; (6) studies on impacts to wild horses and burros on the use of helicopters and helicopter driving during gather. BLM reviewed its Standard Operating Procedures in response to the views and issues raised at the public meeting and determined that no changes to the SOPs were warranted.

Since 2004, BLM Nevada has gathered just over 26,000 excess animals. Of these, mortality has averaged only 0.5% which is very low when handling wild animals. Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. This data affirms that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective and practical means for the gather and removal of excess wild horses and burros from the range. BLM also avoids gathering wild horses prior to, after and during the peak foaling season. BLM policy prohibits gathers during the six weeks that precede and follow the peak of foaling season.

On-going consultation with Resource Advisory Councils, the Nevada Department of Wildlife, US Fish and Wildlife Service, livestock operators and others, underscores the need for BLM to maintain wild horse and burro populations within appropriate management level (AML). Consultation between the BLM, State of Nevada Commission for the Preservation of Wild Horses and the Sierra Club occurred in November 2008. These groups toured the area proposed for the gather and jointly concurred that the gather was needed based on the observed effects to

rangeland resources from the over-population of wild horses. The conclusion of the group was that the gather was needed to protect the natural resources as well as the wild horses.

Endangered Species Act Consultation

Section 7 consultation was completed with the U.S. Fish and Wildlife Service. A species list was requested August 3, 2009 and received September 16, 2009 from the U.S. Fish and Wildlife Service in Reno, Nevada. Informal consultation was requested October 20, 2009 and a Letter of Concurrence was received November 18, 2009 from the U.S. Fish and Wildlife Service in Reno, Nevada.

A tour of the Warm Springs Use Area of the Soldier Meadows Allotment, within the Warm Springs HMA, was conducted with the RAC on July 16, 2008. During this tour, the RAC members observed first-hand some of the adverse impacts resulting from the excess number of wild horses on public lands, particularly at water sources.

Native American Consultation

Comments on the EA were received from the Summit Lake Paiute Tribe and the Pyramid Lake Paiute Tribe. Comments on the EA were received from the Summit Lake Paiute Tribe and the Pyramid Lake Paiute Tribe. The Summit Lake Paiute Tribe is concerned about damage from wild horses moving from public lands onto the Summit Lake Reservation, especially in sensitive lakeshore and riparian areas. They estimate 200-250 wild horses from adjoining BLM HMAs have moved to within reservation boundaries and have requested that BLM remove these horses as part of the Complex gather. They also requested additional information on trap locations so they could accurately comment on possible impacts to areas of cultural, religious, and spiritual concern. The Tribe also questioned the basis for statements in the EA concerning water quality of the affected environment and expressed concern about protection for sites of spiritual and religious importance. The Pyramid Lake Paiute Tribe commented on the need to reduce wild horse numbers within the Complex and expressed support for the gather.

BLM has agreed to attempt to gather the horses from the Reservation, as these are wild horses that have moved from public lands onto tribal lands. BLM will coordinate with the Tribe's Natural Resource Department Director during the gather. BLM also provided more detailed maps and explanations of the cultural resource review process and clarified language in the EA to address the concerns about the assessment of water quality.

9.0 PUBLIC INVOLVEMENT

A notification of the availability for a 21 day review and comment period of the preliminary Environmental Assessment was sent to the interested public mailing list for the Complex. The preliminary document was posted on BLM's website at:
<http://www.blm.gov/nv/st/en/fo/wfo.html>.

Additionally, a news release was issued by the Winnemucca District notifying the general public of the availability of the document for review. The comment period was subsequently extended to November 22, 2009, providing for a full 30 day comment period. Additionally, the

Winnemucca District issued a news release notifying the general public of the availability of the document for review. The comment period was subsequently extended to November 22, 2009 (at the request of members of the interested public), providing for a full 30 day comment period.

In excess of 10,000 comments were received from individuals, organizations and agencies, although the majority of these consisted of form letters expressing the same or similar range of concern. All comments were reviewed. Although BLM's review of public comments did not indicate that substantive changes to the conclusions presented in the preliminary EA were warranted, they did lead to changes throughout the document to better explain and clarify BLM's analysis in response to comments, which resulted in a more comprehensive and complete document. As a result, the reader should be more informed regarding the proposal and its effects.

10.0 REFERENCES

Bengston, Ginny. 2002. Bureau of Land Management, Winnemucca Field Office Resource Management Plan/Environmental Impact Statement Final Ethnographic Assessment. Benston Consulting. Sun Valley, Nevada.

Bradley, P.V. et. al. Editors. 2006. The Revised Nevada Bat Conservation Plan. Nevada Bat Working Group. Reno, Nevada. 216 pp.

Coates-Markle, L. 2000. Summary Recommendations, BLM Wild Horse and Burro Population Viability Forum April 1999, Ft. Collins, CO. Resource Notes 35:4pp.

Cothran, E.G. 2004. Genetic Analysis of the Black Rock West, Black Rock East and Warm Springs Canyon, NV. Dept. of Veterinary Integrative Bioscience, Texas A&M University, College Station, TX 77843-4458.

Floyd, Ted et al. 2007. Atlas of the Breeding Birds of Nevada. University of Nevada Press, Reno Nevada.

Ganskopp, D.C. 1983. Habitat use and Spatial Interactions of Cattle, Wild Horses, Mule deer, and California Bighorn Sheep in the Owyhee Breaks of Southeast Oregon. PhD Dissertation, Oregon State University.

Ganskopp, D.C. and M. Vavra. 1986. Habitat Use by Feral Horses in the Northern Sagebrush Steppe. Journal of Range Management 39(3):207-211.

Ganskopp, D.C. and M. Vavra. 1987. Slope Use by cattle, feral horses, deer, and bighorn sheep. Northwest Science, 61(2):74-80.

Great Basin Bird Observatory. 2003. Nevada Bird Count. A habitat-based monitoring program for breeding birds of Nevada. Instruction package and protocol for point count surveys.

Green, J.S. and J.T. Flinders. 1980. Habitat and dietary relationships of the pygmy rabbit. Journal of Range Management. 33:136-142.

Interior Board of Land Appeals 88-591, 88-638, 88-648, 88-679 at 127.

109 Interior Board of Land Appeals 119 API 1989.

118 Interior Board of Land Appeals 75.

Kirkpatrick, J.F., R. Naugle, I.K.M. Lui, J. W. Turner Jr., M. Bernoco. 1995. Effects of Seven Consecutive years of PZP Contraception on Ovarian Function in Feral Mares, Biology of Reproduction Monograph Series 1: Equine Reproduction VI: 411-418.

Larrucea, Eveline S. 2007. Bureau of Land Management Surprise Field Office Pygmy Rabbit (*Sylvilagus idahoensis*) Survey. Unpublished report.

McGuckian Jones, Peggy. 1978. Emigrant Trails in the Black Rock Desert. Technical Report No. 6. Bureau of Land Management, Nevada State Office, Reno, Nevada.

McInnis, M.A. 1984. Ecological Relationships among Feral Horses, Cattle, and Pronghorn in Southeastern Oregon. PhD Dissertation. Oregon State University.

McInnis, M.A. and M. Vavra. 1987. Dietary relationships among feral horses, cattle, and pronghorn in southeastern Oregon. Journal of Range Mgt 40(1):60-66.

Neel, L.A. (Editor). 1999. Nevada Partners in Flight Bird Conservation Plan. Nevada Department of Wildlife. March 2007. www.ndow.org

Nevada Natural Heritage Program. March 2008. www.heritage.nv.gov
NOAA. www.cpc.ncep.noaa.gov

Paige, C., and S.A. Ritter. 1999. Birds in a sagebrush sea: managing sagebrush habitats for bird communities. Partners in Flight Western Working Group, Boise, ID.

Platts, W.S., and J.N. Rinne. 1985. Riparian and stream enhancement management and research in the Rocky Mountains. North American Journal of Fisheries Management 5:115-125.

Riddel, Francis A. 1960. Honey Lake Paiute Ethnography. Anthropological Papers 4. Nevada State Museum, Carson City.

Singer F.J., Zeigenfuss L. 2000. Genetic Effective Population Size in the Pryor Mountain Wild Horse Herd: Implications for conserving genetics and viability goals in wild horses. U.S. Geologic Survey, Midcontinent Ecological Science Center, Ft. Collins CO. Resource Notes 29: 2 pp.

Smith, M.A. 1986a. Impacts of Feral Horses Grazing on Rangelands: An Overview. Equine Veterinary Science, 6(5):236-238.

Smith, M.A. 1986b. Potential Competitive Interactions Between Feral Horses and Other Grazing Animals. Equine Veterinary Science, 6(5):238-239.

Smith, M.A. and J.W. Waggoner, Jr., et al. 1982. Vegetation Utilization, Diets, and Estimated Dietary Quality of Horses and Cattle Grazing in the Red Desert of Westcentral Wyoming. BLM Contract No. AA851-CTO-31.

Society for Range Management, 1989. A glossary of Terms Used in Range Management (Third ed.). Society for Range Management, Denver, Colo.

Stewart, Omer C. 1939. The Northern Paiute Bands. University of California Anthropological Records 2(3):127-149.

Turner Jr, J.W., I.K.M. Lui, Rutberg, A., J.W., Kirkpatrick. 1997. Immunocontraception Limits Foal Production in Free Roaming Feral Horses in Nevada, J. Wildl. Manage. 61 (3):873-880.

U.S.D.A. Natural Resources Conservation Service
2006 Hydrologic Unit Coverage 5, draft GIS layer

U.S.D.I. Bureau of Land Management, Winnemucca Field Office
1982 Sonoma-Gerlach Management Framework Plan (MFP)
1997 Technical Reference 1737-14: Grazing Management for Riparian Wetland Areas
2003 BLM Nevada Migratory bird best management practices for the sagebrush biome
2005 Winnemucca Resource Management Plan Socioeconomic Report
2006a Herd Management Areas GIS layer
2006b Gather Operations GIS layer
2006c Grazing Allotments GIS layer
2006d Wilderness Study Area GIS layer
2006e Winnemucca District Boundary GIS layer

U.S. Fish and Wildlife Service. 1995. Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) recovery plan. Portland, Oregon. 108 pp.

U.S. Fish and Wildlife Service. 1997. Recovery plan for the rare species of Soldier Meadows. Portland, Oregon. 50 pp.

U.S. Fish and Wildlife Service. 2009. Species List for Calico Complex Wild Horse Gather. Reno, Nevada.

U.S. Fish and Wildlife Service. 2009. Informal consultation on the Calico Complex Wild Horse Gather. Reno, Nevada.

U.S.D.I. Geologic Survey
Digital Raster Graphic (DRG) 1:250,000 topographic maps

Vavra, M. and F. Sneva. 1978. Seasonal diets of five ungulates grazing the cold desert biome. Proceedings of the First International Rangeland Congress. Society for Range Mgt. Denver, CO.

Zoo Montana. 2000. Wildlife Fertility Control: Fact and Fancy. Zoo Montana Science and Conservation Biology Program, Billings, MT.

Map 1. Calico Complex Wild Horse Capture Area

Map 2. Calico Complex Herd Management Areas and Allotments

Map 3. Cumulative Assessment Area

Appendix A. Standard Gather Operation Operating Procedures (SOPs)

Gathers would be conducted by utilizing contractors from the Wild Horse and Burro Gathers-Western States Contract, or BLM personnel. The following procedures for gathering and handling wild horses and burros would apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse and Burro Aviation Management Handbook* (March 2009).

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that capture operations necessitate the services of a veterinarian, one would be obtained before the capture would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

Trap sites and temporary holding sites will be located to reduce the likelihood of undue injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites would be located on or near existing roads.

The primary capture methods used in the performance of gather operations include:

1. Helicopter Drive Trapping. This capture method involves utilizing a helicopter to herd wild horses and burros into a temporary trap.
2. Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers.
3. Bait Trapping. This capture method involves utilizing bait (water or feed) to lure wild horses and burros into a temporary trap.

The following procedures and stipulations will be followed to ensure the welfare, safety and humane treatment of wild horses and burros in accordance with the provisions of 43 CFR § 4700.

A. Capture Methods used in the Performance of Gather Contract Operations

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:

All trap and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and holding facilities not located on public land must have prior written approval of the landowner.

2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.
3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:
 - a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.
 - b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes.
 - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.
 - d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses
 - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
4. No modification of existing fences will be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.
5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.
6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, and estrays from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the

Contractor to hold animals if the specific gathering requires that animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

7. The Contractor shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. An animal that is held at a temporary holding facility after 5:00 p.m. and on through the night, is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.
8. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if injured animals must be destroyed and provide for destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.
10. Animals shall be transported to final destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the COR/PI for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the COR/PI. Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR/PI. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR.

B. Capture Methods that may be used in the Performance of a Gather

1. Capture attempts may be accomplished by utilizing bait (feed or water) to lure animals into a temporary trap. If the contractor selects this method the following applies:
 - a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
 - b. All trigger and/or trip gate devices must be approved by the COR/PI prior to

capture of animals.

- c. Traps shall be checked a minimum of once every 10 hours.
2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:
 - a. A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one hour.
 - b. The contractor shall assure that foals shall not be left behind, and orphaned.
 3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor with the approval of the COR/PI selects this method the following applies:
 - a. Under no circumstances shall animals be tied down for more than one hour.
 - b. The contractor shall assure that foals shall not be left behind, or orphaned.
 - c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.
2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.
3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities, and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a

minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.

4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.
5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.
6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:
 - 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
 - 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
 - 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
 - 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).
7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.
8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

D. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses and burros utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.
 - a. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by

the Contracting Officer or his/her representative.

b. The Contractor shall obtain the necessary FCC licenses for the radio system

c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

2. Should the contractor choose to utilize a helicopter the following will apply:

a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.

b. Fueling operations shall not take place within 1,000 feet of animals.

E. Public Participation

Opportunities for public viewing (i.e. media, interested public) of gather operations will be made available to the extent possible; however, the primary consideration will be to protect the health and welfare of the animals being gathered. The public must adhere to guidance from the onsite BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

F. Responsibility and Lines of Communication

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

The appropriate Field Manager and the Winnemucca District Manager will take an active role to ensure the appropriate lines of communication are established between the gather staff, Field Office, District Office, State Office, National Program Office, and Palomino Valley Corral. All publicity, formal public contact and inquiries will be handled through the appropriate Field Manager.

G. Site Clearances

Personnel working at gather sites will be advised of the illegality of collecting artifacts.

Prior to implementation of gather operations, trap sites and temporary holding facilities would be evaluated for cultural resources. Gather sites and temporary holding facilities would not be constructed on wetlands or riparian zones.

Appendix B. Fertility Control Treatment Operating Procedures (SOPs)

The following management and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered by trained BLM personnel.
2. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18-gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14-gauge needle. These are loaded on the end of a trocar (dry syringe with a metal rod) which is loaded into the jab-stick which then pushes the pellets into the breeding mares being returned to the range. The pellets and liquid are designed to release the PZP over time similar to a time release cold capsule.
3. Delivery of the vaccine would be as an intramuscular injection while the mares are restrained in a working chute. 0.5 cubic centimeters (cc) of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be loaded into the jab-stick for the second injection. With each injection, the liquid and pellets would be propelled into the left hindquarters of the mare, just below the imaginary line that connects the point of the hip and the point of the buttocks.
4. All treated mares would be freeze-marked on the hip to enable researchers to positively identify the animals during the research project as part of the data collection phase.
5. At a minimum, monitoring of reproductive rates using helicopter flyovers will be conducted in years 2 through 4 by checking for presence/absence of foals. The flight scheduled for year 4 will also assist in determining the percentage of mares that have returned to fertility. In addition, field monitoring will be routinely conducted as part of other regular ground-based monitoring activities.
6. A field data sheet will be used by the field applicators to record all the pertinent data relating to identification of the mare (including a photograph when possible), date of treatment, type of treatment (1 or 2 year vaccine, adjuvant used) and HMA, etc. The original form with the data sheets will be forwarded to the authorized officer at NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the district office.
7. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, and disposition of any unused PZP, the number of treated mares by HMA, district office, and state along with the freeze-mark applied by HMA.
8. The district office will assure that treated mares do not enter the adoption market for three years following treatment. In the rare instance, due to unforeseen circumstance, treated mare(s) are removed from an HMA before three years has lapsed, they will be maintained in either a BLM facility or a BLM-contracted long term holding facility until expiration of the three year holding period. In the event it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three year holding period, the animal may be placed in the adoption program or sent to a long-term holding facility.

Appendix C. Calico Mountains Complex Population Modeling

To complete the population modeling for the Calico Mountains complex, version 1.40 of the WinEquus program, created April 2, 2002, was utilized.

Objectives of Population Modeling

Review of the data output for each of the simulations provided many useful comparisons of the possible outcomes for each alternative. Some of the questions that need to be answered through the modeling include:

- Do any of the Alternatives “crash” the population?
- What effect does fertility control have on population growth rate?
- What effects do the different alternatives have on the average population size?
- What effects do the different alternatives have on the genetic health of the herd?

Population Data, Criteria, and Parameters utilized for Population Modeling

All simulations used the survival probabilities, foaling rates, and sex ratio at birth that was supplied with the WinEquus population model for the Garfield HMA.

Sex ratio at Birth:

47% Females

53% Males

The following percent effectiveness of fertility control was utilized in the population modeling for Alternative I:

Year 1: 94%, Year 2: 82%, Year 3: 68%

The following table displays the contraception parameters utilized in the population model for Alternative I:

Contraception Criteria
(Alternative I)

Age	Percentages for Fertility Treatment
Foal	0%
1	0%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10-14	100%

15-19	100%
20+	100%

Population Modeling Criteria

The following summarizes the population modeling criteria that are common to the Proposed Action, and all alternatives:

- Starting Year: 2009
- Initial gather year: 2009
- Gather interval: regular interval of three years
- Gather for fertility treatment regardless of population size: No
- Continue to gather after reduction to treat females: Yes
- Sex ratio at birth: 53% males
- Percent of the population that can be gathered: 85%
- Minimum age for long term holding facility horses: Not Applicable
- Foals are not included in the AML
- Simulations were run for 10 years with 100 trials each

The following table displays the population modeling parameters utilized in the model:

Population Modeling Parameters

Modeling Parameter	Alternative I Proposed Action (Remove to Low Limit of Management Range, Adjust sex ratio 60-40 & Fertility Control)	Alternative II (Remove to Lower Limit of Management Range Only)	Alternative III No Action (No Removal & No Fertility Control)
Management by removal, 60:40 adjustment in sex ratio, and fertility control	Yes	No	N/A
Management by removal only	No	Yes	N/A
Threshold Population Size for Gathers	952	952	N/A
Target Population Size Following Gathers	572	572	N/A
Gather for fertility control regardless of population size	No	No	N/A
Gathers continue after removals to treat additional females	Yes	No	N/A

Effectiveness of Fertility Control: year 1	94%	N/A	N/A
Effectiveness of Fertility Control: year 2	82%	N/A	N/A
Effectiveness of Fertility Control: year 3	68%	N/A	N/A

Results of WinEquus Population Modeling

Population modeling was completed for the proposed action and the alternatives. One hundred trials were run, simulating population growth and herd demographics to determine the projected herd structure for the next four years, or prior to the next gather. The computer program used simulates the population dynamics of wild horses. It was written by Dr. Stephen H. Jenkins, Department of Biology, University of Nevada, Reno, under a contract from the National Wild Horse and Burro Program of the Bureau of Land Management and is designed for use in comparing various management strategies for wild horses.

To date, one herd has been studied using the 2-year PZP vaccine. The Clan Alpine study, in Nevada, was started in January 2000 with the treatment of 96 mares. The test resulted in fertility rates in treated mares of 6% year one and 18% year two.

Interpretation of the Model

The estimated population of 3,095 wild horses in the Calico Mountains Complex was based on a March 2008 direct count population inventory and was used in the population modeling. This population estimate was affirmed in a September 2009 direct count population inventory. Year one is the baseline starting point for the model, and reflects wild horse numbers immediately prior to the gather action and also reflects a slightly skewed sex ratio which favors males. A sex ratio of 53:47 was entered into the model for the post gather action population. In this population modeling, year one would be 2010. Year two would be exactly one year in time from the original action, and so forth for years three, four, and five, etc. Consequently, at year eleven in the model, exactly ten years in time would have passed. In this model, year eleven is 2021. This is reflected in the Population Size Modeling Table by "Population sizes in ten years" and in the Growth Rate Modeling Table by "Average growth rate in 10 years". Growth rate is averaged over ten years in time, while the population is predicted out the same ten years to the end point of year eleven. The Full Modeling Summaries contain tables and graphs directly from the modeling program.

The initial herd size, sex ratio and age distribution for the current population estimate was structured by the WinEquus Population Model using data for the Garfield HMA. This initial population data was then entered into the model and the model was used to predict various outcomes of the different alternatives, including the No Action Alternative for comparison purposes.

The parameters for the population modeling were:

1. gather when population exceeds 952 horses in the Complex
2. foals are not included in AML
3. percent to gather 85
4. three years between gathers
5. number of trials 100
6. number of years 10
7. initial calendar year 2010
8. initial population size 3,040
9. population size after gather 572
10. implement selective removal criteria
11. fertility control Yes for Proposed Action (Alternative 1) and No for Alternative 2

This table compares the projected population growth for the proposed action and the alternatives at the end of the ten-year simulation. The population averages are from the median trial.

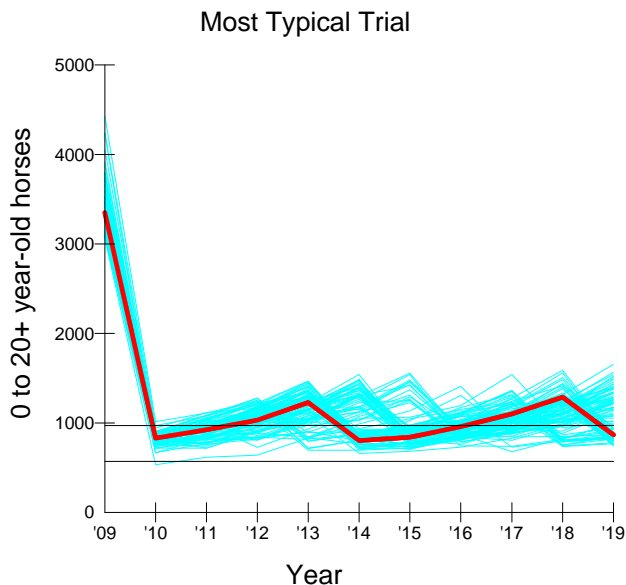
Modeling Statistic Calico Mountains Complex	Proposed Action	Alternative 2 – Removals Only	No Action
Population in Year One	572	572	3,040
Median Growth Rate	13.7%	19.4%	19.5%
Average Population	1,228	1,286	9,599
Lowest Average Population	1,070	1,029	7,049
Highest Average Population	1,385	1,372	11,662
Average # Animals removed	3,493	3,916	n/a
Average # Mares Treated	248	n/a	n/a

Results – Proposed Action – Removal to 572 with Fertility Control and Sex Ratio Adjustment

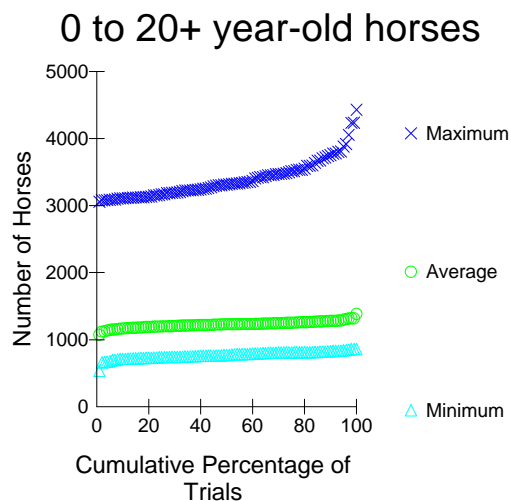
The parameters for the population modeling were:

- 1-10. The same as parameters listed above.
- 11. Yes, treat all mares released with fertility control

Population Size



Population Size



Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	533	1,070	3,059
10th Percentile	714	1,167	3,108
25th Percentile	738	1,198	3,168
Median Trial	770	1,228	3,316
75th Percentile	810	1,253	3,514
90th Percentile	830	1,279	3,766
Highest Trial	861	1,385	4,430

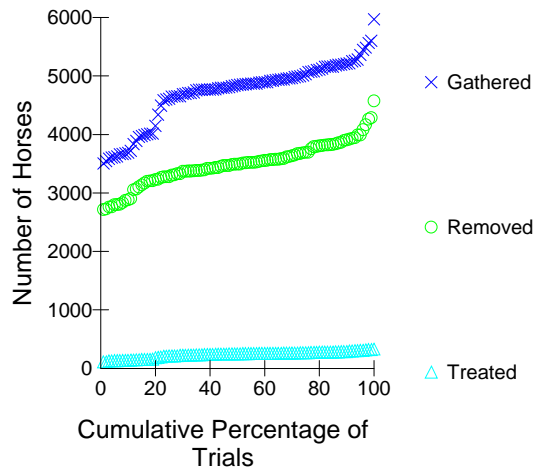
* 0 to 20+ year-old horses

Explanation

In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 533 and the highest was 4,430. In half the trials the minimum population size in 11 yrs was less than 770 and the maximum was less than 3,316. The average population size in 11 yrs ranged from 1,070 to 1,385.

Gathers

0 to 20+ year-old horses

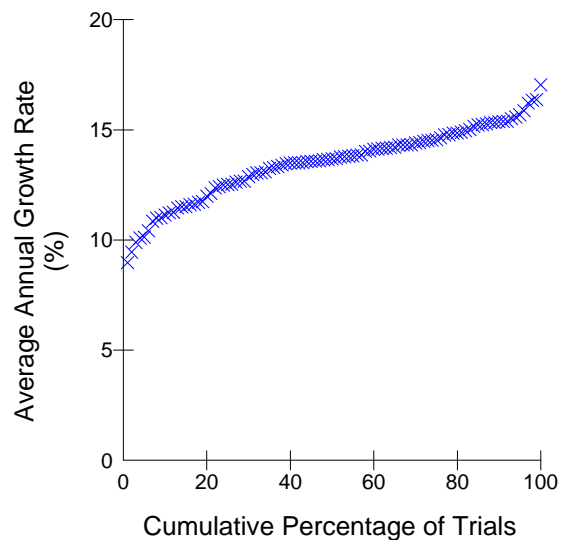


Totals in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	3,503	2,716	112
10th Percentile	3,704	2,891	140
25th Percentile	4,630	3,292	210
Median Trial	4,847	3,493	248
75th Percentile	5,048	3,694	266
90th Percentile	5,214	3,914	291
Highest Trial	5,970	4,572	329

* 0 to 20+ year-old horses

Growth Rate



Average Growth Rate in 10 Years

Lowest Trial	9.0
10 th Percentile	11.2
25th Percentile	12.5
Median Trial	13.7
75th Percentile	14.6
90th Percentile	15.4
Highest Trial	17.0

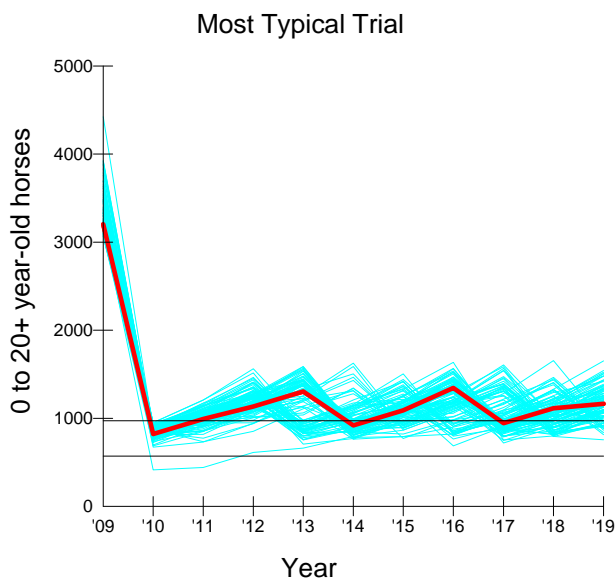
Results – Alternative 2 – Removal to 572 with No Fertility Control or Sex Ratio

Adjustment

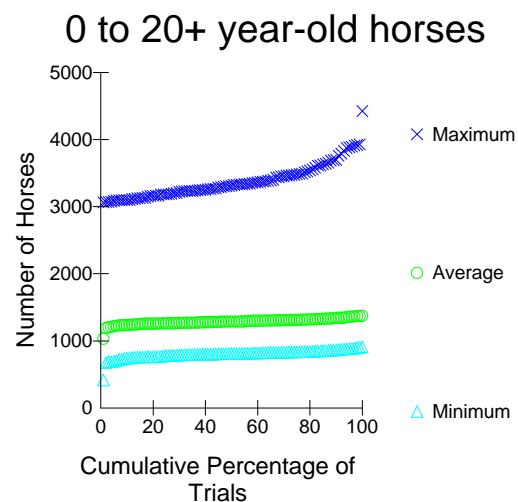
The parameters for the population modeling were:

- 1-10. same as parameters listed above.
11. No, do not treat mares released with fertility control.

Population Size



Population Size



Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	414	1,029	3,062
10th Percentile	738	1,234	3,098
25th Percentile	779	1,259	3,185
Median Trial	808	1,286	3,318
75th Percentile	834	1,311	3,486
90th Percentile	865	1,341	3,729
Highest Trial	910	1,372	4,425

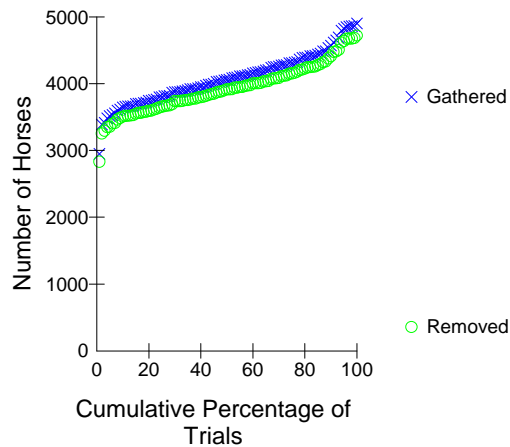
* 0 to 20+ year-old horses

Explanation

In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 414 and the highest was 4,425. In half the trials the minimum population size in 11 yrs was less than 808 and the maximum was less than 3,318. The average population size in 11 yrs ranged from 1,029 to 1,372.

Gathers

0 to 20+ year-old horses

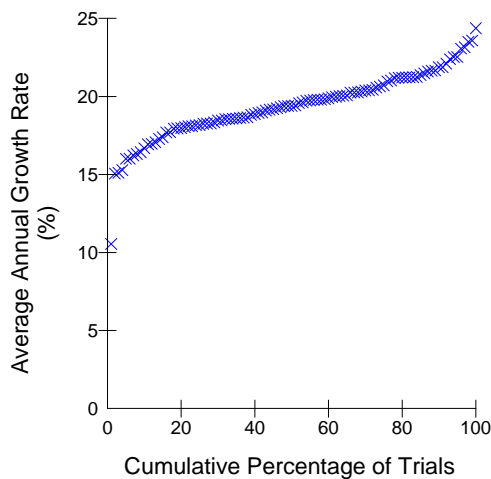


Totals in 11 Years*

	Gathered	Removed
Lowest Trial	2,949	2,832
10th Percentile	3,651	3,514
25th Percentile	3,808	3,660
Median Trial	4,062	3,916
75th Percentile	4,315	4,158
90th Percentile	4,595	4,443
Highest Trial	4903	4721

* 0 to 20+ year-old horses

Growth Rate



Average Growth Rate in 10 Years

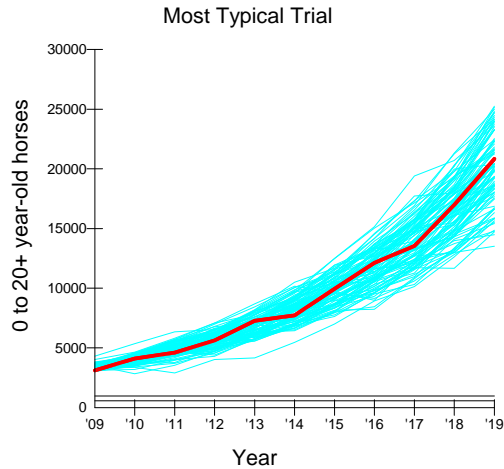
Lowest Trial	10.6
10th Percentile	16.8
25th Percentile	18.2
Median Trial	19.4
75th Percentile	20.8
90th Percentile	21.9
Highest Trial	24.4

Results – No Action

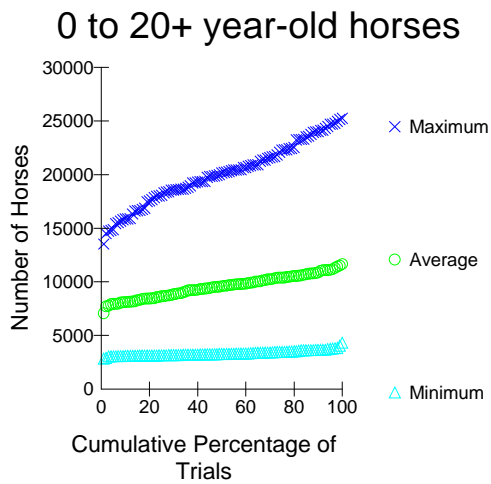
The parameters for the population modeling were:

1. do not gather in 2009
2. foals are not included in AML
3. percent to gather 0

Population Size



Population Size



Population Sizes in 11 Years*

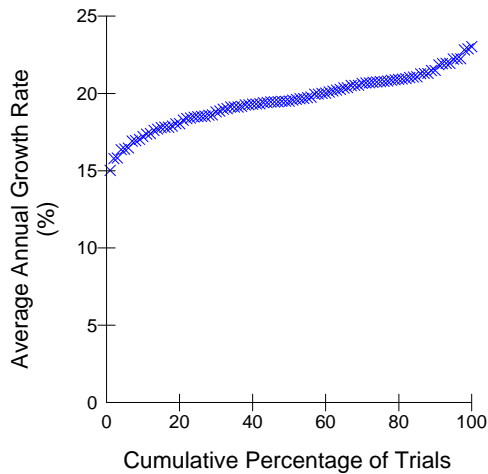
	Minimum	Average	Maximum
Lowest Trial	2,837	7,049	13,516
10th Percentile	3,088	8,118	15,860
25th Percentile	3,142	8,659	18,184
Median Trial	3,263	9,599	20,180
75th Percentile	3,456	10,393	22,303
90th Percentile	3,648	10,942	24,071
Highest Trial	4,314	11,662	25,255

* 0 to 20+ year-old horses

Explanation

In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 2,837 and the highest was 25,255. In half the trials the minimum population size in 11 yrs was less than 3,263 and the maximum was less than 20,180. The average population size in 11 yrs ranged from 7,049 to 11,662.

Growth Rate



Average Growth Rate in 10 Years

Lowest Trial	15.0
10th Percentile	17.3
25th Percentile	18.5
Median Trial	19.5
75th Percentile	20.8
90th Percentile	21.7
Highest Trial	23.0

Appendix D. Calico Complex Interested Public Mailing List

American Humane Association
Animal Protection Institute of America
Animal Welfare Institute, D.J. Schubert
Anthony & Associates, Jane L. Trigero
Center for Biological Diversity, Rob Mrowka
Committee For High Desert, Katie Fite
Department of Wildlife
Humane Society of the U.S.
Humboldt County Commissioners
In Defense of Animals, Suzanne Roy
Int. Soc. Protection of Mustangs & Burros, Karen Sussman
Lovelock community, James Jurad
Marion Co. Humane Society, Inc., Barbara Warner
N6 Board, Henry Filippini Jr.
National Mustang Association, Richard Sewing
National Wild Horse Association
Natural Resource Defense Council
NDOW, Game Biologist, Chris Hampson
NDOW, Habitat Supervisory Biologist, Roy Leach
Nevada Cattlemens Association, Meghan Wereley
Nevada State Clearinghouse, Krista Coulter
NV Land & Resource Company, David Buhlig
NV Wild Horse Commission, Cathy Barcomb
Paiute Meadows Grazing Association, LLC
Resource Concepts, Inc., C. Rex Cleary

Soldier Meadows Ranch, Jim Kudrna
State of Nevada, Chris Collis
Synergy Resource Solutions, Inc., Jack Alexander
The Cloud Foundation, Inc., Ginger Kathrens
U.S. Fish & Wildlife Service, Robert Williams
Washoe County Commissioners
Western Watersheds Project, Barbara Hakala
Wild Horse Organized Assistance, Dawn Lappin
Wild Horse Preservation League, Bonnie & Chuck Matton
Wild Horse Sanctuary, Diane Nelson
Wild Horse Spirit, Betty Kelly
Pauline Adams
Steven Carter
Vicki J. Cohen
James Ferrigan III.
Doby George
Roger Johnson
Mike Mc Williams
Robert Depaoli
Andrea Jackson
Joe Turnbow
Robert Bauer
Jo Bunny
Craig Downer
Tina Nappe
John Carpenter

Appendix E. Minimum Requirement/Tool Worksheets

Step 1- Determining the Minimum Requirement (a two-part process)

Part A. Minimum Requirement Key to making determinations on wilderness management proposals

(This flow chart will help you assess whether the project is the minimum required action for the administration of the area as wilderness. Answering these questions will determine *if* this proposed action really is the *minimum required* action in wilderness.)

<u>Guiding Questions</u>	<u>Answers and explanations</u>
<p>1. <u>Is this an emergency?</u> (i.e. a situation that involves an inescapable urgency and temporary need for speed beyond that available by primitive means, such as fire suppression, health and safety of people, law enforcement efforts involving serious crime or fugitive pursuit, retrieval of the deceased or an immediate aircraft accident investigation)</p> <p>If Yes> Document the rationale for line officer approval using the minimum tool form and proceed with action.</p> <p>If No> Go to question 2</p>	<p>No. The proposed action is not considered an emergency.</p>
<p>2. <u>Does the project or activity conflict with the stated management goals, objectives and desired future conditions of applicable legislation, policy and management plans?</u></p> <p>If Yes> Do not proceed with the proposed project or activity.</p> <p>If No> Go to question 3</p>	<p>No. Currently no approved wilderness management plan exists for the involved wilderness areas. Management is based on law, regulation, and policy. BLM wilderness policy provides for the use of motorized and mechanized equipment, including aircraft use to remove wild horses and burros when it is considered the minimum tool that can accomplish the task with the least lasting impact to wilderness values.</p>
<p>3. <u>Is there any less intrusive actions that should be tried first?</u>(i.e. signing, visitor education, or information)</p> <p>If yes> Implement other actions using the appropriate process.</p> <p>If No> Go to question 4</p>	<p>No. The only way to reduce the excess population of wild horses in the Wilderness Areas to the Appropriate Management Level (AML) is to physically remove the excess horses from the area.</p>
<p>4. <u>Can this project or activity be accomplished outside of wilderness and still achieve its objectives?</u>(such as some group events)</p> <p>If Yes> Proceed with action outside of wilderness</p>	<p>No. Conducting the horse gather outside of wilderness could possibly allow BLM to reach AML in the overall Herd Management Areas, but it would not reduce the impacts that the horses are having on the Wilderness Areas. The temporary</p>

using the appropriate process. If No> Go to question 5	corrals/traps however will be located outside of the wilderness boundary.
5. <u>Is this project or activity subject to valid existing rights?</u> (such as mining claims or right of way easements) If Yes> Proceed to Minimum Tool Analysis If No> Go to question 6	No. Valid existing rights are not associated with the proposed action.
6. <u>Is their special provisions in legislation (the Wilderness Act of 1964 or the Black Rock Desert-High Rock Canyon Emigrant Trails NCA Act of 2000) that allows this project or activity?</u> If Yes> the proposed project or activity should be considered but is not necessarily <u>required</u> just because it is mentioned in legislation. Go to part B If No> Go to Part B	No. There are no special provisions dealing with wild horses in the legislation.

Part B- Determining the Minimum Requirement

Responsive Questions for Minimum Requirement Analysis: Explain your answer in the response column. If your responses indicate potential adverse affects to wilderness character, evaluate whether or not you should proceed with the proposal. If you decide to proceed, begin developing plans to mitigate impacts, and complete a Minimum Tool Analysis. Some of the following questions may not apply to every project.

Effects on Wilderness Character	Responses
1. How does this project/activity benefit the wilderness as a whole as opposed to one resource?	The objective of the proposed action is to remove excess wild horses from the Calico Mountains, Warm Springs Canyon, Black Rock Range East, and Black Rock Range West HMAs, which includes portions of six designated Wilderness Areas. Excess wild horses can have a negative impact to the naturalness of the wilderness areas, by competing with the areas native populations of wildlife, overgrazing riparian areas, and trampling springs. The proposed action would maintain and enhance the naturalness of the wilderness areas by removing the excess horses and the impacts they are having on the overall naturalness of the areas.
2. If this project/activity were not completed,	If the proposed action were not conducted the

what would be the beneficial and detrimental effects to the wilderness resources?	excess number of horses would continue to compete with native wildlife and impact the vegetation and riparian resources of the wilderness. The impacts to solitude and primitive recreation that would be associated with the gather operations would not occur if the proposed action was not completed.
3. How would the project or activity help ensure that the wilderness provides outstanding opportunities for solitude or a primitive and unconfined type of recreation? (e.g. does the project/activity contribute to the people's sense that they are in a remote place with opportunities for self discovery, adventure, quietness, connection with nature, freedom, etc.)	The project would not enhance the opportunities for solitude or for primitive and unconfined recreation. During the time frame that the crews would be conducting the gather the opportunities for solitude and primitive recreation would be reduced, but the impact would be temporary and relatively short in duration. The impacts to these opportunities will also be mitigated by conducting the gather operations during a time of the year when the Wilderness Areas receive very little visitation.
4. How would the project/activity help ensure that human presence is kept to a minimum and that the area is affected primarily by the forces of nature rather than being manipulated by humans?	Although the Wild and Free Roaming Horse and Burro Act of 1971 mandates that BLM manage horses as an integral part of the natural systems where they are found, wild horses are human introductions into the wilderness areas and overpopulations of horses can impact the naturalness of the areas. Removing excess horses would maintain and enhance the naturalness of the areas and allow the area to be affected primarily by the forces of nature.
Management Situation 5. What does your management plan, policy, and legislation say to support proceeding with this project?	Currently no approved wilderness management plan exists for the involved wilderness areas. Management is based on law, regulation, and policy. BLM wilderness policy provides for the use of motorized and mechanized equipment, including aircraft use to remove excess wild horses and burros when it is considered the minimum tool that can accomplish the task with the least lasting impact to wilderness values.
6. How did you consider wilderness values over convenience, comfort, political, economic or commercial values while evaluating this project/activity?	The purpose of the proposed action is to enhance the naturalness of the wilderness areas by removing excess horses, and alleviating the impacts that they are having on the naturalness of the areas.
7. Should We Proceed?	Yes Go to step 2 (Minimum Tool Analysis)

Step 2 - Determining the Minimum Tool (the Minimum Tool Analysis)

These questions will assist you in determining the appropriate tool(s) to accomplish the project or proposed activity with the least impact to the wilderness resource.

Develop several alternate approaches to implementing the project or activity. At a minimum consider the following three alternatives.

Alt#1 An alternative using motorized equipment or mechanized transport	Alt#2 An alternative using non-motorized equipment or non-mechanized transport	Alt#3 Variations of methods 1 and 2, as appropriate
--	--	---

Describe the alternatives. Be specific and provide detail.

- What is proposed?
- Why is it being proposed in this manner?
- Who is the proponent?
- When will the project take place?
- Where will the project take place?
- How will it be accomplished? (What methods and techniques)

<p>Alt#1 To remove excess horses from the Calico Mountains, Warm Springs Canyon, Black Rock Range East, and Black Rock Range West HMAs</p> <p>The horses would be gathered using helicopters to herd the horses and burros to traps outside of Wilderness. Helicopter assisted roping methods could also be used if required.</p> <p>Gathering the horses using these methods would require low level helicopter flights over the involved Wilderness Areas. Helicopters would only land in the Wilderness Areas in emergency situations.</p> <p>The action is being proposed in this manner because it is the most successful way to gather horses from the type of terrain found in the wilderness areas.</p>	<p>Alt#2 Same as 1, but horses would only be herded by wranglers on horseback to traps located outside of wilderness.</p>	<p>Alt#3 Same as 1, but the horses would be gathered by setting up bait/water traps. To successfully remove horses from the wilderness areas the traps would need to be set up inside the wilderness areas. Traps would be transported to the sites by helicopter or by motorized vehicle using existing ways in the wilderness.</p> <p>Once the horses were trapped they would need to be transported out of the wilderness by truck. Motorized vehicle use would only be authorized on existing ways.</p>
---	---	---

<p>The proponent is the Winnemucca District Office, BLM.</p> <p>The project would take place during the winter of 2009.</p> <p>Project will take place in the Calico Mountains, Warm Springs Canyon, Black Rock Range East, and Black Rock Range West HMAs which includes portions of the North Black Rock Range, Pahute Peak, Calico Mountains, High Rock Lake, Little High Rock Canyon, East Fork High Rock Canyon and Black Rock Desert Wilderness Areas.</p> <p>The horses would be gathered by herding them with a helicopter to temporary corrals located outside of wilderness.</p>		
--	--	--

Utilize the following criteria to assess each alternative (a brief statement should suffice)

Biophysical effects

- Describe the environmental resource issues that would be affected by the proposed action.
- Describe any effects this action will have on protecting natural conditions within the regional landscape, (i.e. non-native insects and disease, or noxious weed control)
- Include both biological and physical effects.

<p>Alt#1</p> <p>The proposed action would have minimal impacts on the biophysical characteristics of the Wilderness Areas. There may be some trampling of vegetation and soil by the herding of the horses, but these impacts would be similar to those associated with the normal movement of large ungulates.</p>	<p>Alt#2</p> <p>Same as 1</p>	<p>Alt#3</p> <p>The trap sites would see an increase in soil and vegetation trampling due to the increase in horse numbers in the vicinity of the traps. The likelihood of transferring noxious weeds into the wilderness areas would increase by allowing the motorized vehicles to drive in and transport the horses out of the wilderness.</p>
---	-------------------------------	---

Social/recreation/experiential effects

- Describe how the wilderness experience may be affected by the proposed action

-Include effects to recreation use and wilderness character

-Consider the proposed effect the proposal may have on the public and their opportunity for discovery, surprise and self-discovery.

<p>Alt#1 Solitude would be impacted for the duration of the actual gather. The sites and sounds associated with a low flying helicopter would be heard and seen for long distances in the Wilderness Areas and would have an impact on the wilderness experience of visitors. This impact will be temporary and relatively short in duration, and will be mitigated because the gather will occur during a low visitor use season.</p>	<p>Alt#2 Solitude would be impacted for the duration of the actual gather. This alternative would have the least impact on solitude and the wilderness experience. The use of wranglers on horseback to herd the horses to traps would be less intrusive and would only impact the immediate area.</p>	<p>Alt#3 Solitude would be impacted for the duration of the actual gather. The site of the traps set up in wilderness would impact the wilderness experience of visitors. The use of helicopters or motorized vehicles to transport the traps and horses would impact the solitude of the area. This alternative would take the longest time to accomplish the task and would therefore impact the solitude of the areas for the longest time. Using motorized vehicles on the existing routes would probably increase the amount of motorized trespass along them.</p>
--	--	---

Societal/political effects

-Describe any political considerations, such as MOUs, agency agreements, local positions that may be affected by the proposed action.

-Describe relationship of method to applicable laws

<p>Alt#1 BLM has made commitments to remove excess horses to achieve AML in the HMA.</p> <p>Wilderness groups have commented in favor of the project.</p> <p>BLM wilderness policy provides for the use of motorized and mechanized equipment, including aircraft use to remove excess wild horses and burros when no other alternatives exist.</p>	<p>Alt#2 Same as 1</p>	<p>Alt#3 Same as 1</p>
---	----------------------------	----------------------------

Health and safety concerns

-Describe and consider any health and safety concerns associated with the proposed action. Consider the types of tools used, training, certifications and other administrative needs to ensure a safe work environment for employees. Also consider the effect the proposal may have on the health and safety of the public.

Alt#1 Using low flying helicopters to herd horses can pose some safety concerns. Only experienced contractors with a good safety record would be allowed to conduct the work. The general public would not be put at risk by the project.	Alt#2 Under this alternative all herding would be by wranglers on horseback. This type of herding also has safety concerns such as; being thrown from a horse, horses falling over on riders, etc. The risk associated with this work would be increased because of the remoteness of the areas where the horses would be herded. The general public would not be put at risk by the project.	Alt#3 Under this alternative risks would involve those normally associated with driving motorized vehicles on rough terrain, and sling loading materials by helicopter. The general public would not be put at risk by the project.
--	--	--

Economic and timing considerations

*-Describe the costs and timing associated with implementing each alternative
-Assess the urgency and potential cumulative effect from this proposal and similar actions*

Alt#1 This alternative would greatly decrease the amount of time that would be required for the project because the horses could be located quickly and then immediately herded to the corrals.	Alt#2 This alternative would take a much longer time to accomplish the goal of achieving AML. The wild horses would have to be located and then herded by the wranglers which would take a considerable amount of time.	Alt#3 This alternative would also take much more time to achieve AML than alternative#1. Because the traps would only hold a small number of horses, it would potentially take months to reach AML in the HMAs.
--	--	--

Formulate a preferred alternative from the above alternatives and describe in detail below

The preferred alternative is Alternative #1. This alternative would allow BLM to effectively achieve AML in the area while minimizing the impacts to solitude and primitive recreation by decreasing the amount of time that will be required for the gather. Helicopters will be used to herd the horses to trap sites located outside of wilderness. No landing of aircraft will occur in the Wilderness Areas other than for emergency purposes, and no motorized vehicles would be used in the Wilderness Areas.

Further refine the alternative to minimize impacts to wilderness

<i>-What will be the specific operating requirements?</i>	All trap sites will be located outside of the Wilderness Areas. No motorized vehicles will be used inside the Wilderness Areas. No landing of aircraft will occur except in the case of an emergency.
<i>-What are the maintenance requirements?</i>	Census flights will occur after the gathers to determine population growth in the HMAs.
<i>-What standards and designs will apply?</i>	Standard operating procedures found in the EA will be used.
<i>-Develop and describe any mitigation measures that apply?</i>	Gather activities will avoid weekends or holidays to minimize the likelihood of impacting wilderness visitors.
<i>-What provisions have been made for monitoring and feed back to strengthen future efforts and/or prevent the need for recurring future actions?</i>	A monitoring plan was prepared with the EA that describes the methods that will be used.